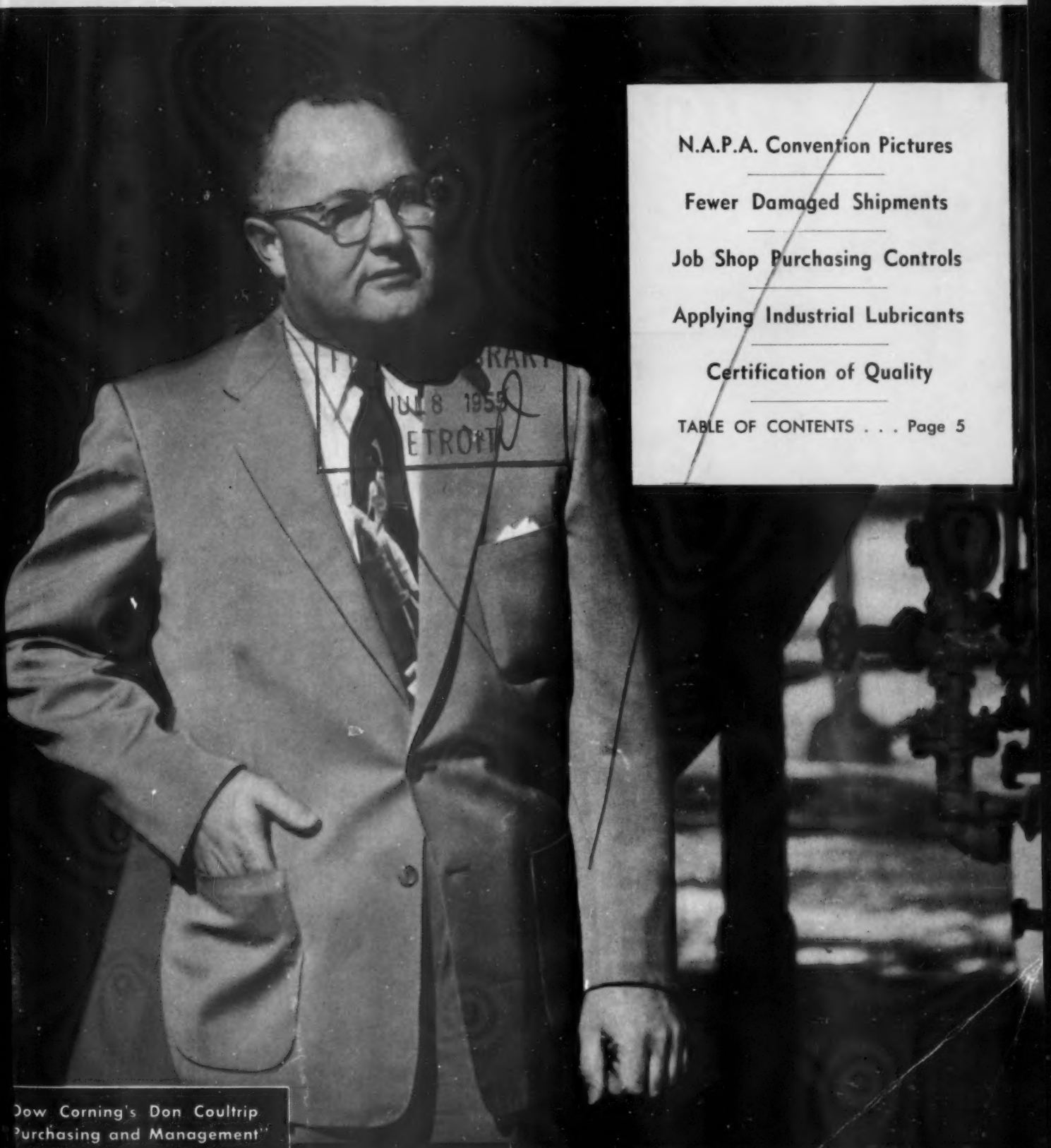
TECHNOLOGY DEPT.

JULY, 1955

PURCHASING



N.A.P.A. Convention Pictures

Fewer Damaged Shipments

Job Shop Purchasing Controls

Applying Industrial Lubricants

Certification of Quality

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Dow Corning's Don Coultrip
Purchasing and Management"

A CONOVER-MAST PUBLICATION • ONE DOLLAR

√R v. 39 Jy-S'55

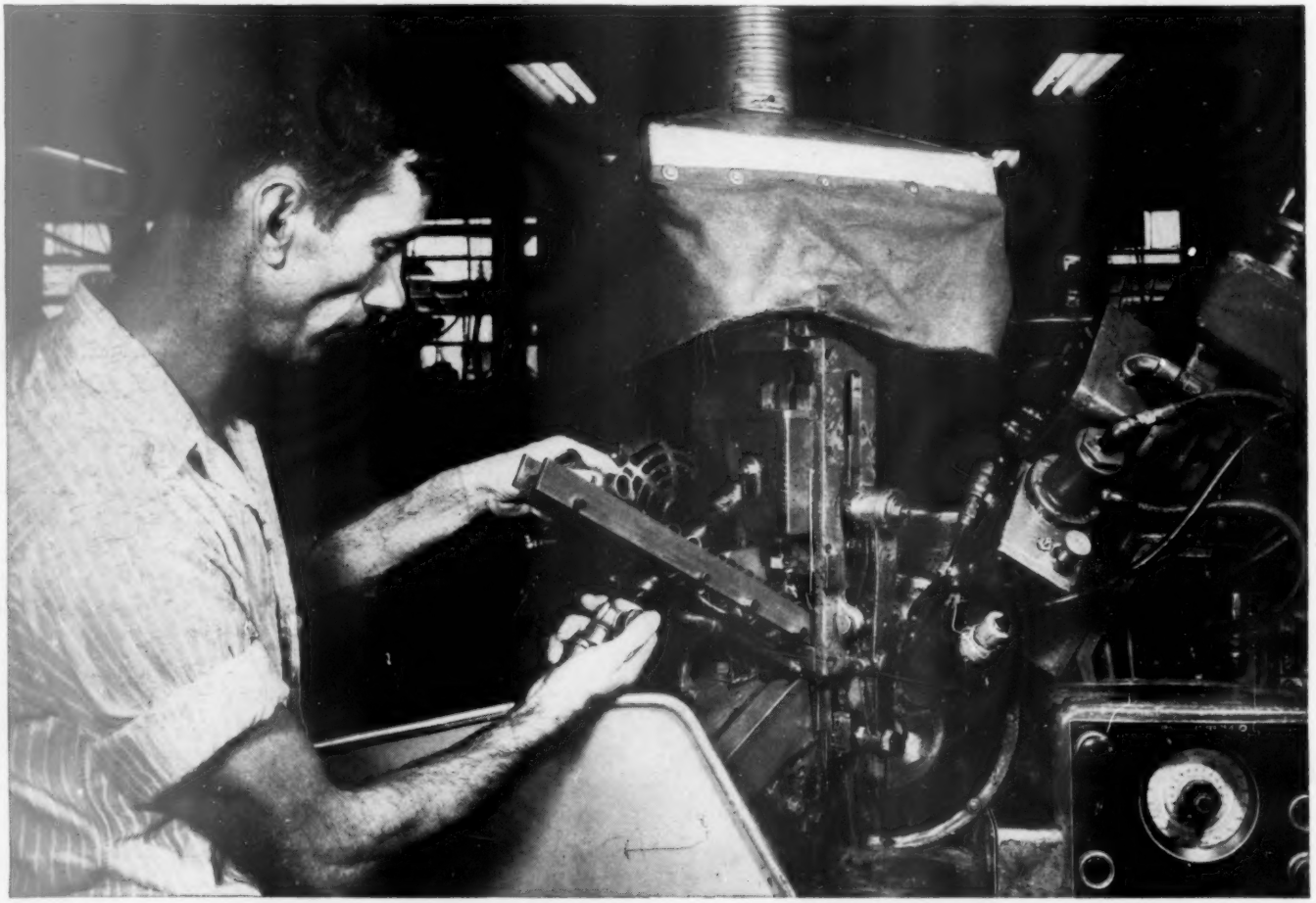
THE TOUGH JOBS GO TO TEXACO

HERE'S ONE EXAMPLE of how better lubrication and lubrication engineering service — *Texaco* — increased production, and reduced unit costs.

An Ohio firm (name on request) was grinding bearing cones. Contamination of the machine lubricant by the grinding oil was causing excessive machine downtime with consequent loss of production.

A Texaco Lubrication Engineer surveyed the situation and recommended use of *Texaco Cleartex Oil* — one product to be used as both grinding oil and machine lubricant. Machine downtime was virtually eliminated and production boosted to approximately double the number of pieces per wheel dressing.

Benefits like these explain why "the tough jobs go to Texaco." Let a Texaco Lubrication Engineer survey *your* plant and help you produce more at lower unit cost. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.



TEXACO

TEXACO Lubricants, Fuels and Lubrication Engineering Service

TUNE IN . . . TEXACO STAR THEATER starring DONALD O'CONNOR or JIMMY DURANTE on television . . . Saturday nights, NBC.

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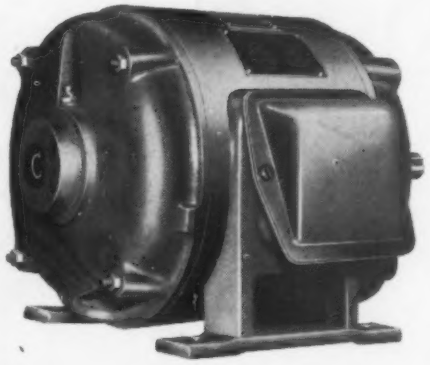
Tech

A case of SHEAR necessity

HERE'S HOW A Century MOTOR IS Performance-Rated© TO BRING OUT THE BEST IN THIS MASSIVE MACHINE

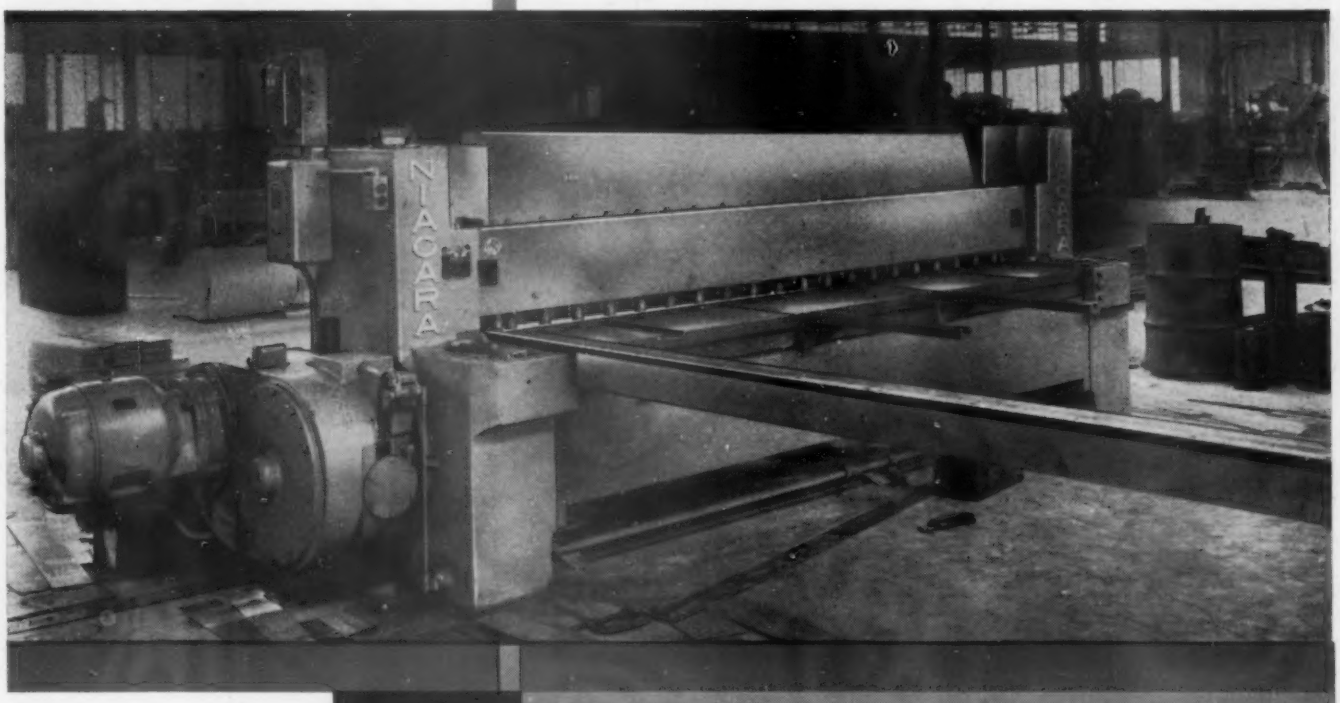


Machine Tool Motors... AC or DC... drip proof, dust proof or explosion proof frames.

This particular shock load required the speed-torque characteristics of NEMA Design "B" in a 10 H.P. polyphase motor. Century provided it in a protected, drip proof frame, with compact direct flange mounting and the terminal box out of the way at the bottom of the motor.

The owner of this shear says: "Say anything you want about it. It's giving me everything I expected... and more!"

Century Performance-Rating makes it possible to select from Century's complete line precisely the right motor size, speed, torque and frame to bring out the best performance in your equipment. Specify Century motors on your new equipment... or as replacements on your present machines. Call your nearest Century District Office or Authorized Century Distributor.



Performance-Rated© Motors
1/8 to 400 H. P.

C CENTURY ELECTRIC COMPANY

1806 PINE STREET • ST. LOUIS 3, MISSOURI

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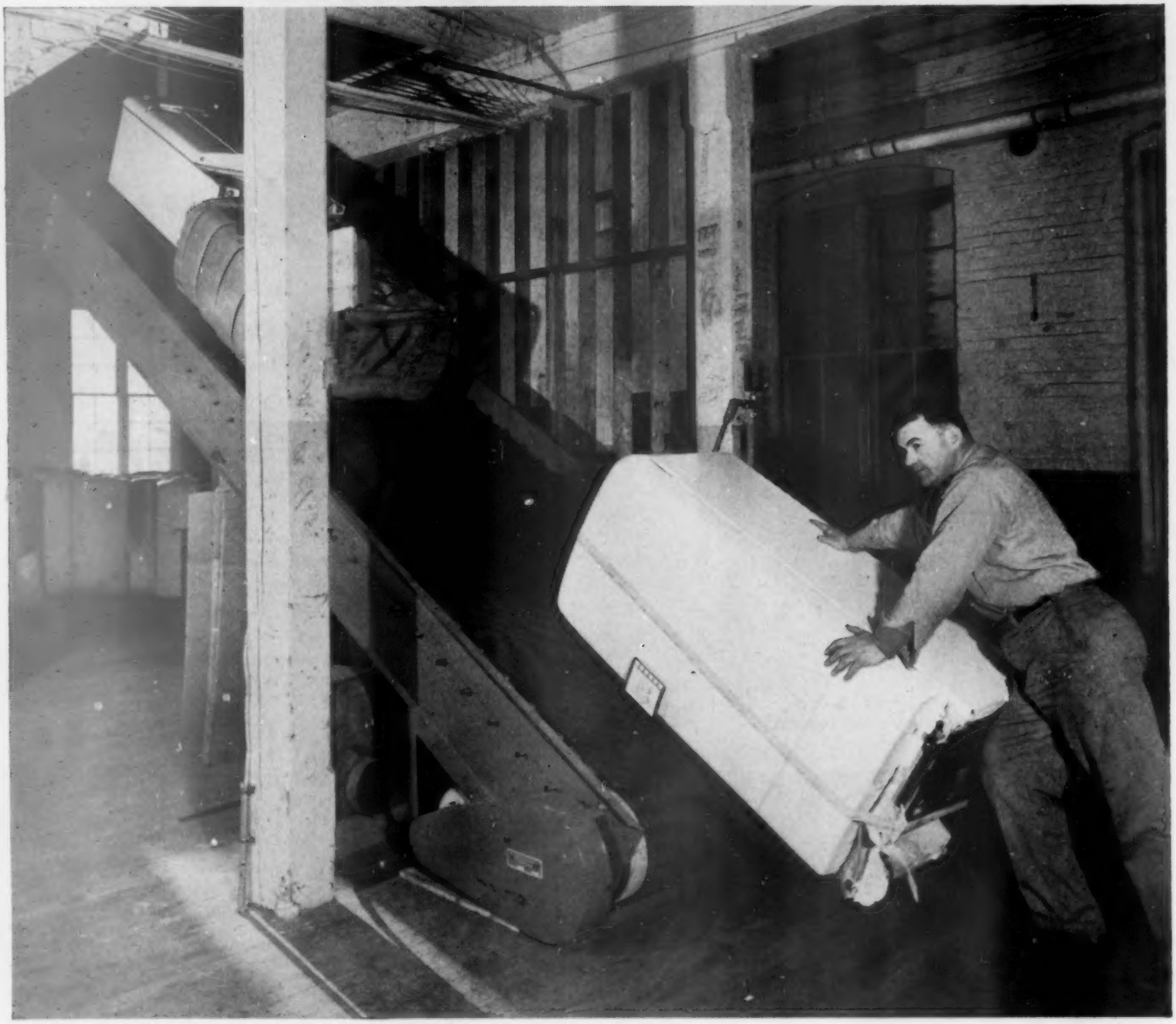
RESEARCH KEEPS **B.F.Goodrich** FIRST IN RUBBER



Refrigerators climb upstairs

A typical example of B. F. Goodrich improvement in rubber

IN THIS warehouse, all sorts of things —heavy bales, furniture, even refrigerators—have to be carried upstairs for storage, then later on, back down for shipment.

A conveyor belt would be the fastest way. But could a rubber belt lift such heavy loads up such a steep incline? They asked a B. F. Goodrich man, and he told them about the Ribflex belt—an improved design that's made with parallel ribs of rubber, cross cut into thousands of flexible grip blocks. The tiny rubber blocks are tough enough to stand years of use, yet soft so they bend just enough to grip anything carried on the belt and move it easily, quickly.

The B. F. Goodrich "rubber elevator" is what you see in the picture. It was put in at a fraction of the cost of a freight elevator, and it's giving the owners everything they expected in the way of service.

Product improvement like this is *always* going on at B. F. Goodrich. New ways are constantly being found to make conveyor belts, V belts and hose work better, last longer. No product is ever regarded as "finished" or standardized.

How this cuts your costs: Biggest cost savings come almost always from top performance rather than lowest prices. If you use rubber products, remember B. F. Goodrich is one company that will *never* lower its quality standards. This means you can be sure of top performance and real money savings when you buy from your B. F. Goodrich distributor. *The B. F. Goodrich Company, Dept. M-431, Akron 18, Ohio.*

B.F.Goodrich
INDUSTRIAL PRODUCTS DIVISION

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To better serve your steel needs,
INLAND
has been building since 1893.
STEEP ROCK IRON ORE PROJECT
CHICAGO OFFICE BUILDING
NO. 3 GALVANIZING LINE
PLANT #2 SOAKING PITS
WIDE FLANGE BEAM MILL
NO. 2 BLOOMING MILL FACILITIES

WHY INLAND WILL INVEST $35,000,000 IN YOUR FUTURE IN 1955

Banking on the ability of Midwestern industry to create new and improved products in ever greater volume, to satisfy the demand of the American people for a higher standard of living, Inland keeps pace with new and improved plants, processes and facilities to better serve their customers with quality steel . . . when, where and how they want it.

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38 South Dearborn Street • Chicago 3, Illinois
Sales Offices: Chicago • Milwaukee • St. Paul Davenport • St. Louis • Kansas City • Indianapolis Detroit • New York
Principal Products: Sheets • Strip • Structural Shapes • Plates • Bars • Tin Mill Products • Rails and Track Accessories • Coal Chemicals

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GRAYBAR CAN SUPPLY VIRTUALLY ANY PORTABLE ELECTRICAL TOOL needed for plant production line, construction, or maintenance work. Just call your local Graybar Representative or nearby Graybar office or warehouse. They'll provide prompt, accurate price and specification data on tools as well as any of your other electrical needs.

The right tools get the job done faster

FREE . . . Graybar Tool Catalog

64 pages of price and ordering information make this one of the most comprehensive tool catalogs ever published. Hand tools, motor-driven tools, and miscellaneous supplies for every electrical construction or maintenance need are listed. Write, today, for your free copy.

Better tools make better workers . . . work goes faster, and more smoothly with quality tools built for the job.

Check your tool inventory, today – then order the hand or portable power tools you need . . . via Graybar.

For, as with all of your electrical needs, Graybar offers a specialized service in their procurement.

- **Well-known makes** – of proved design and construction for hard usage.
- **Availability** – via more than 110 strategically-located Graybar offices and warehouses.
- **One source . . . one responsibility** – through centralization of all order assembly, shipping, and billing functions.
- **Graybar Specialists** – men with years of experience in all of the major electrical fields to advise and consult with you or your electrical contractor.
- **Everything Electrical** – for plant maintenance and construction. Over 100,000 items . . . the products of over 300 leading manufacturers.

425-177

CALL GRAYBAR FIRST FOR . . . GraybaR Everything Electrical

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PURCHASING

The National Magazine of Industrial Purchasing

VOL. 39, No. 1 JULY, 1955

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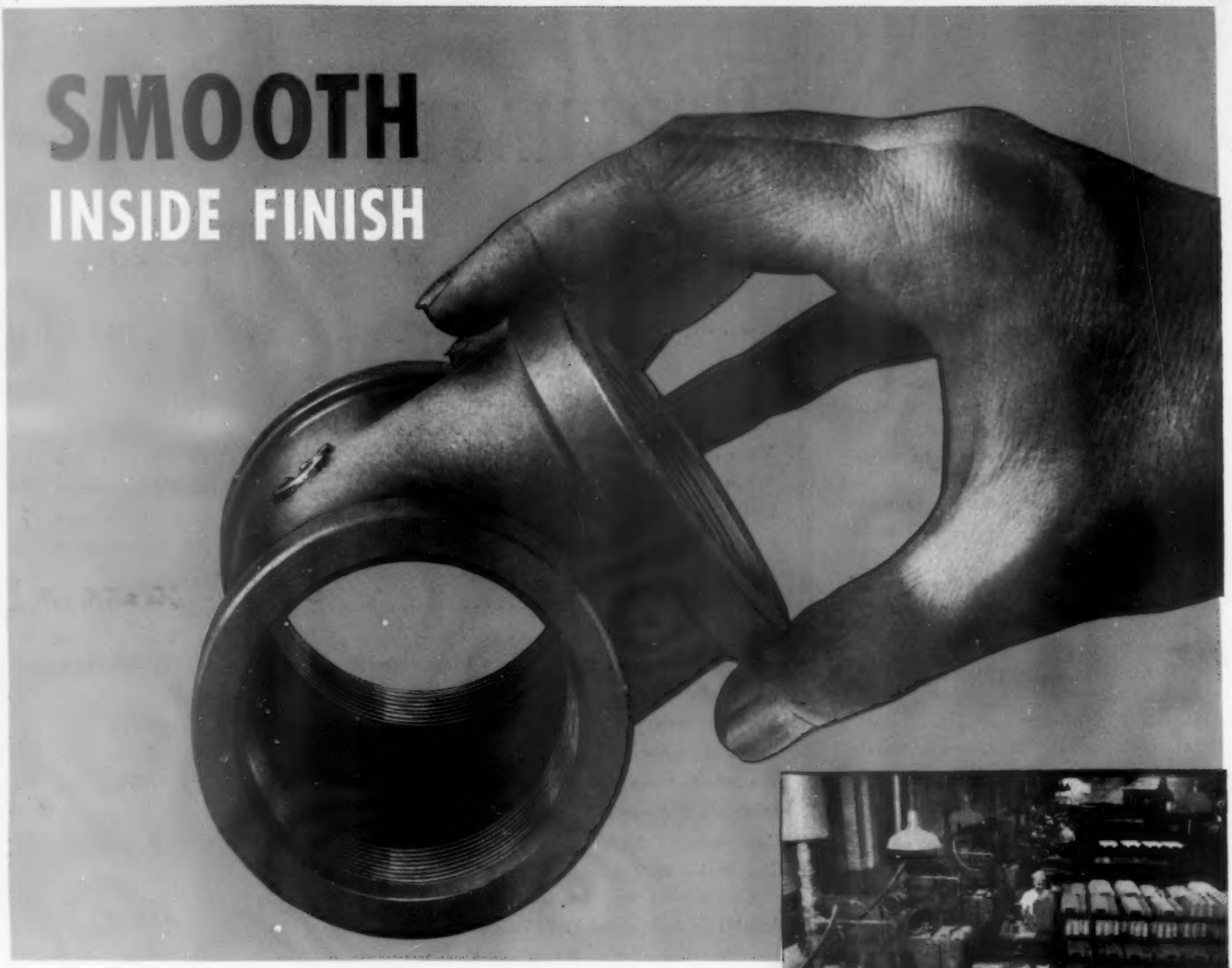
SMOOTH
INSIDE FINISH



Grinnell cores combine the finest materials with expert workmanship.

Modern production methods, finest workmanship...

Typical of Grinnell rigid standards of manufacture is the use of the finest materials in the making of cores. The result is smooth inside surfaces for free flow in piping installations.

High manufacturing standards — plus high quality metal, modern equipment, latest production techniques, and quality control of every step of manufacture, make the complete line of Grinnell Pipe Fittings uniformly reliable.

Whenever you specify Grinnell Cast Iron and Malleable Iron Fittings, you can be sure of —

- **uniform wall thickness**
- **high quality metal, free from sand holes and wall leaks**
- **tested strength**
- **precision threads for easy running up and tight joints**
- **proper chamfer for easy starting and protection of first thread**
- **smooth cores; dimensional accuracy**

Remember, the Grinnell "G" trade-mark is your assurance of the finest in fittings.

AVAILABLE FROM YOUR LOCAL DISTRIBUTOR.

GRINNELL
PIPE FITTINGS

Grinnell Company, Inc., Providence, Rhode Island

Manufacturer of: pipe fittings • welding fittings • forged steel flanges • steel nipples • engineered pipe hangers and supports
Thermolier unit heaters • Grinnell-Saunders diaphragm valves • prefabricated piping • Grinnell automatic fire protection systems

For More Information Circle No. 108 on Inquiry Card—Page 17

Q. What's the quickest, cheapest way to reach an agreement in purchasing?

A. Reach for the telephone and call Long Distance

Before you place a purchase order, you know the value of talking it over with your supplier.

The best way to reach a *meeting of minds* on quality, price, delivery and other questions is by Long Distance. It's quick and inexpensive. And just as important, it's personal.

So for more profitable purchasing, use the telephone regularly. If you'd like some specific suggestions on the systematic use of Long Distance in purchasing, just call your Bell Telephone Business Office. A telephone company representative will visit you at your convenience.

LONG DISTANCE RATES ARE LOW

Here are some examples:

New York to Philadelphia	50¢
Cleveland to Indianapolis	90¢
Chicago to Pittsburgh	$1.15
Boston to Detroit	$1.40
Washington, D. C., to San Francisco	$2.50

These are the *daytime* Station-to-Station rates for the first three minutes. They do not include the 10% federal excise tax.

Call by Number. It's Twice as Fast.

BELL TELEPHONE SYSTEM

For More Information Circle No. 109 on Inquiry Card—Page 17

WHY ZINC RATES FIRST IN DIE CASTING • NUMBER 3 OF A SERIES

castability — as utilized by PHILCO

These components of the 1955 Philco Roastmeter electric range reveal the wide design latitude possible with ZINC die castings. No other metal or method of production offers product engineers equal freedom of expression with respect to shape, detail and finish.

Consider, for example, two of the castings—the clock face and frame. Not only are these ZINC die castings extremely complex in shape, but the lettering and numerals (both recessed and raised) are sharply defined and the casting surfaces are ready for either plated or painted coatings.

While these attributes of ZINC die castings govern the appearance of the finished product, they also have a decided influence on production costs. The complexity of shape and clean-cut design details minimize the need for secondary operations. And the smooth as-cast surfaces of these ZINC die castings easily take and hold any commercial finish.

Other examples of product engineering with ZINC die castings will be covered in future advertisements in this magazine. Send for our brochure and contact any commercial die caster for the answers to your particular production problems.

Send for your copy

The New Jersey Zinc Company 160 Front St., New York 38, N. Y.

ZINC
FOR DIE CASTING ALLOYS

The Research was done, the Alloys were developed, and most Die Castings are based on

HORSE HEAD SPECIAL (99.99 + % Uniform Quality) ZINC

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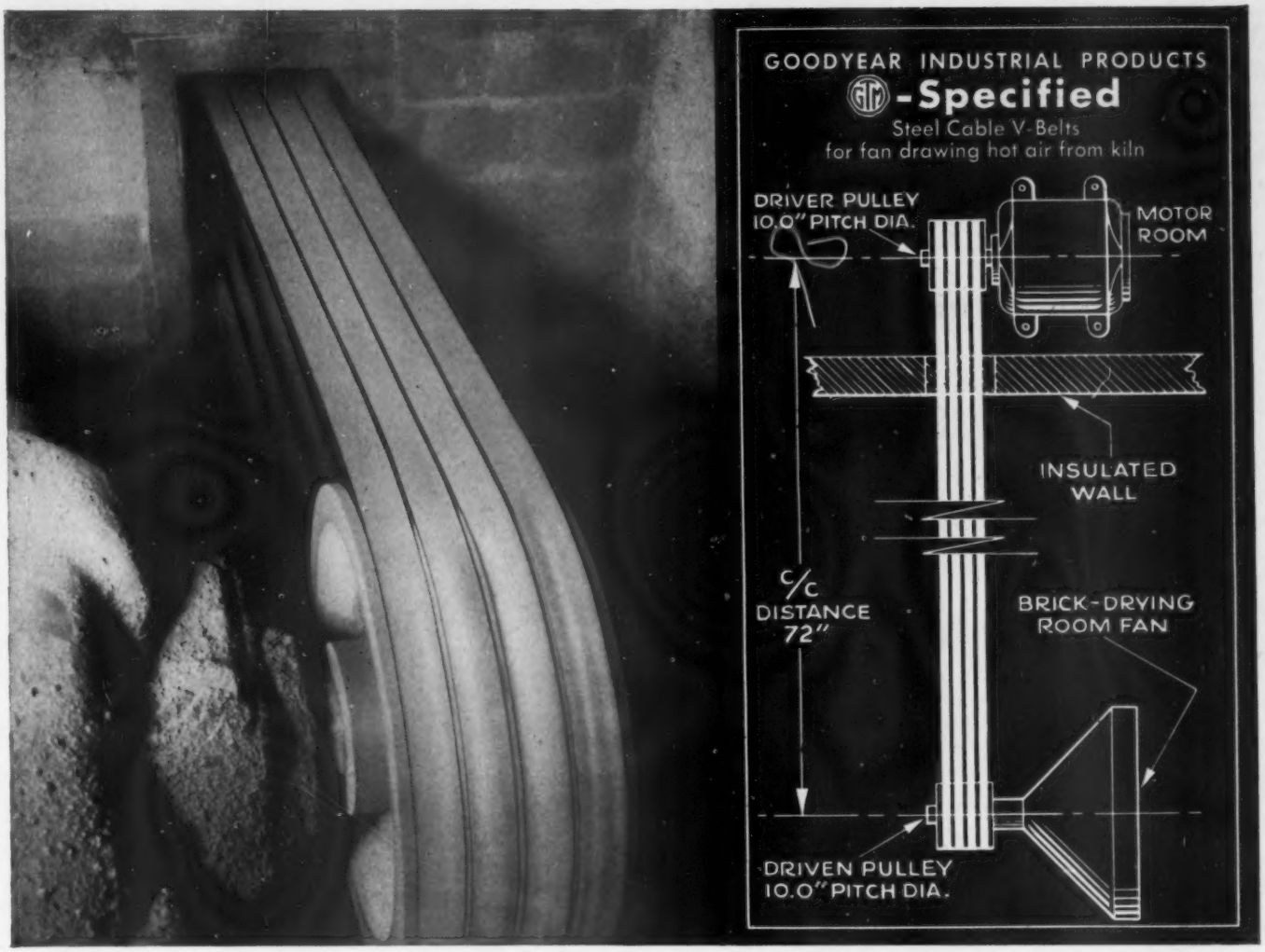

Kiln tried and found 7 times better

driving blower fan in 200° heat

TEMPERATURES at a constant 200 degrees plus nonstop year-round operation were the conditions V-belts driving a blower fan pulling air from a brick manufacturer's kiln had to live with. Several types of ordinary V-belts failed after only 8 months' service causing frequent shutdowns and costly replacements.

To solve the problem the G.T.M. – Goodyear Technical Man – was called in. He recommended Steel Cable V-Belts made with load-carrying cables of high tensile steel. The tensile member of these high-strength belts is unaffected by heat. The belts have practically no stretch, are designed for minimum maintenance.

RESULT: The Goodyear belts served 5 years before replacement–7½ times longer than belts previously used. They stopped costly plant shutdowns and, since they did not slip, reduced pulley wear.

If you have a problem drive that's costing you money, call in the G.T.M. for expert help. Contact him through your Goodyear Distributor or write:

Goodyear, Industrial Products Division
Akron 16, Ohio

YOUR GOODYEAR DISTRIBUTOR *can quickly supply you with Hose, Flat Belts, V-Belts, Packing or Rolls. Look for him in the yellow pages of your Telephone Directory under "Rubber Products" or "Rubber Goods."*

STEEL CABLE V-BELTS by

GOODYEAR

THE GREATEST NAME IN RUBBER

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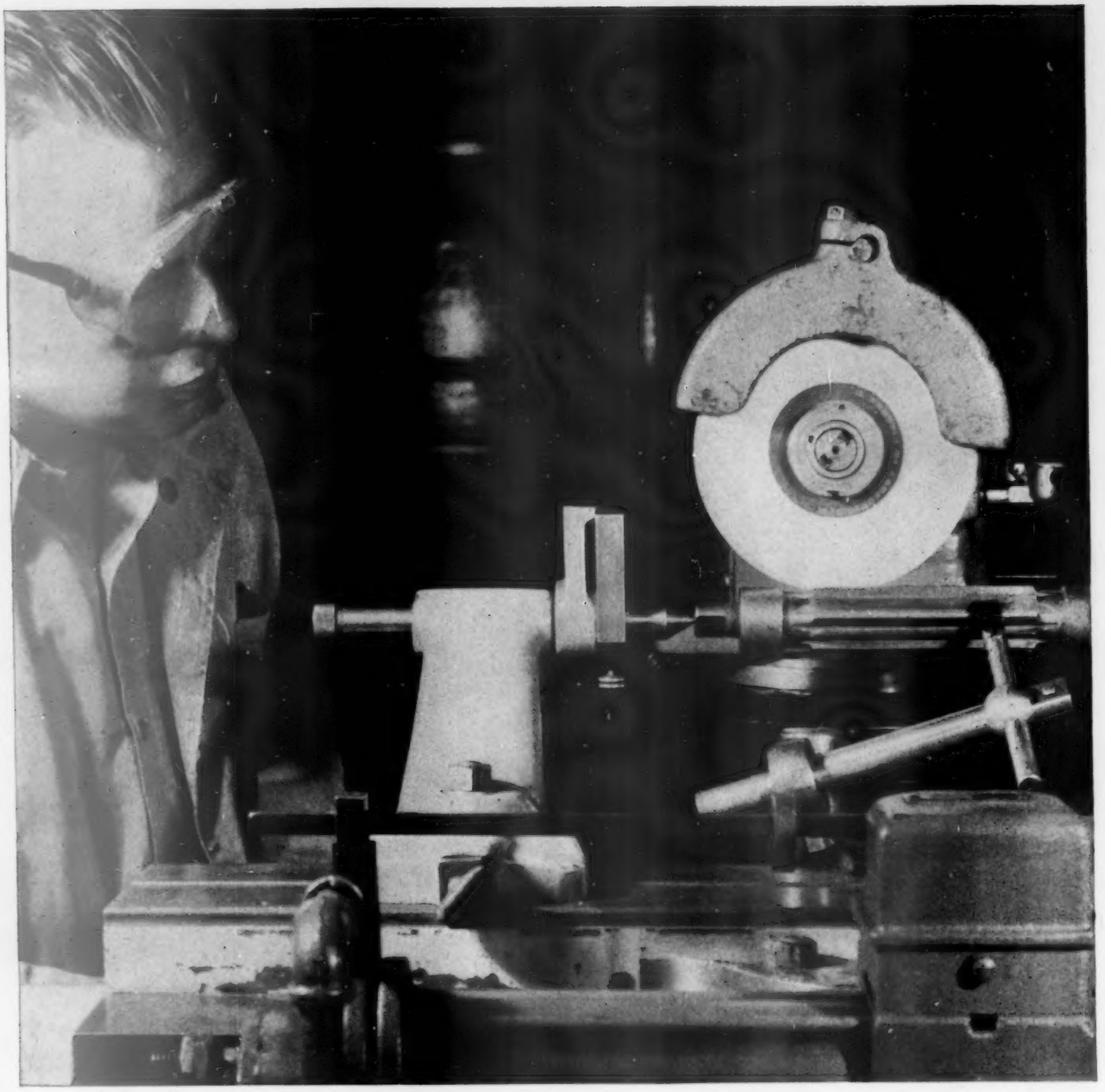
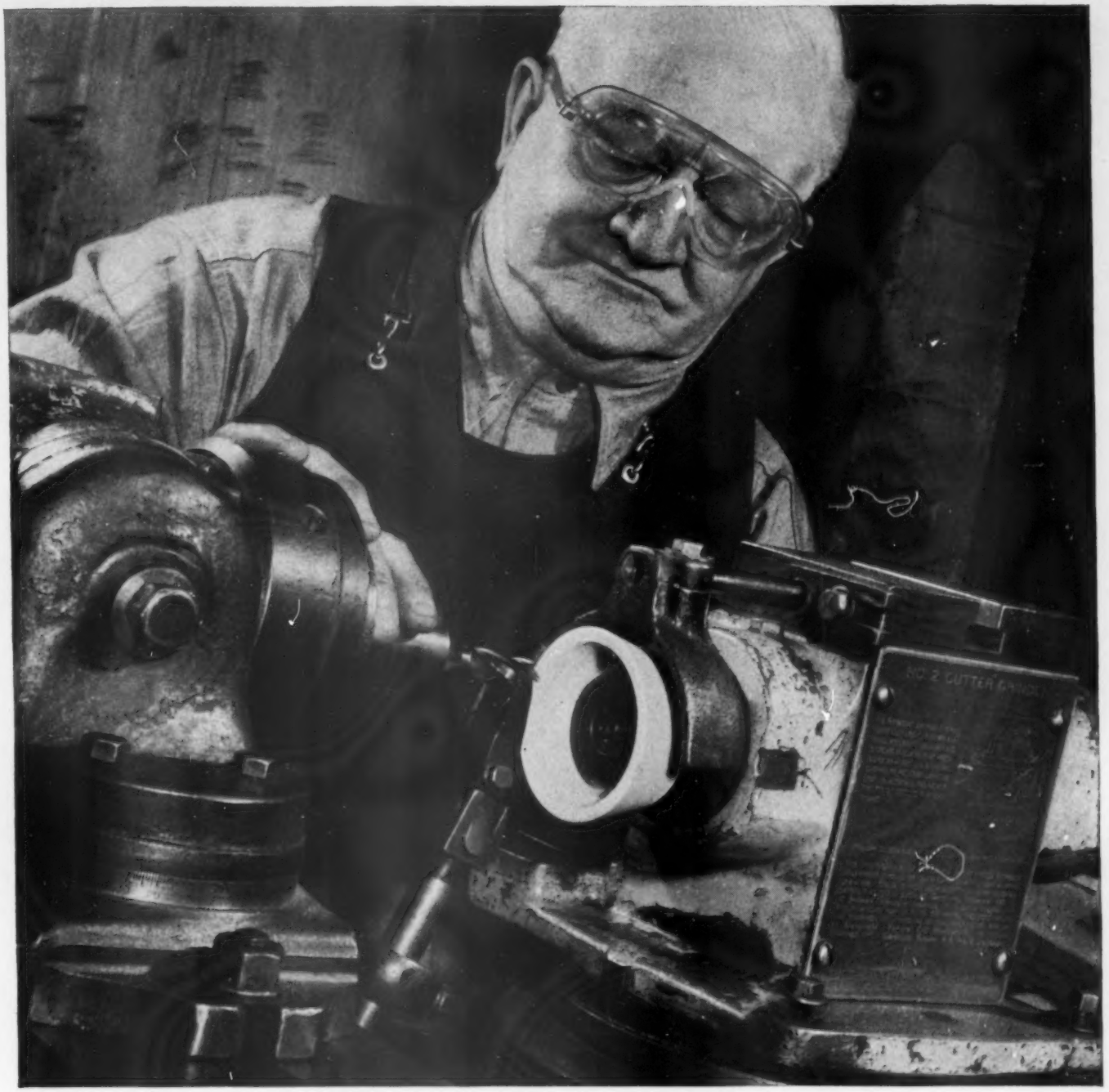


From start to finish with **ONE** *set-up...*

ASK YOUR CARBORUNDUM DISTRIBUTOR or salesman for a demonstration of these outstanding new wheels in your own shop, on your own tools. He's listed in the yellow pages of your phone book under "Abrasives" or "Grinding Wheels" and offers expert counsel plus fast, dependable service on all your grinding needs.

FREE FOLDER AND WALL CHART! Gives recommended V40 wheel gradings for grinding high speed tool and die steels. Write The Carborundum Company, Dept. PU 81-56, Niagara Falls, N. Y. In Canada: Canadian Carborundum Company, Ltd., Niagara Falls, Ont.



use **V40** *bond* **TOOL ROOM WHEELS**

HOLDS FORM, YET EASY TO DRESS! Here's the tool room wheel that does *more work* more of the time than any other wheel you can use. The superior form-holding ability of **V40** eliminates costly stops for wheel dressing and re-setting-up halfway through a job. Yet...when dressing between jobs, the special vitrified bond composition permits faster, easier dressing—with substantial savings in diamonds, time and abrasive.

COOLER, FASTER CUTTING! V40 Bond Wheels cut exceptionally cool and free, even on high speed steels and hi-vanadium types. They are available in every type of wheel (straight, recessed, straight cup, flaring cup, dish, saucer) for every tool room grinding operation.

EASY TO IDENTIFY, EASY TO ORDER! Pure white aluminum oxide grain and the bright red blotter give **V40** wheels a distinctive appearance. They're easy to order, too...you can usually specify **V40** Bond Wheels in the same grit and grade as wheels you are now using.

CARBORUNDUM

REGISTERED TRADE MARK

...continually putting more **SENSE** *in your abrasive* **DOLLAR**

81-98

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UNITED
SPECIAL HEADED PRODUCT

From tiny 2-56 screws to diameters over one inch with heads of all designs, even with portions of the shank centerless ground, we are daily solving the problems of industry to get just the right product for them. May we assist you in your problem of securing just the right special headed product?

—when you have a "*special*" problem—think of United

SCREWS · NUTS · WASHERS
CLUTCH HEAD SCREWS
STAMPINGS

United Screw and Bolt Corporation
Chicago 8 Cleveland 2 New York 7

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July 1, 1955

TRADE WAR LOOMING

Relaxation of the cold war with the Soviets will probably stir up a hot war on the trade front. What the Russians were unable to do by force, they will seek to do by trade and economic maneuvers.

This is the prospect facing U.S. buyers who have foreign suppliers. In the postwar period the trade relations of virtually all of Europe has been bent out of its normal pattern by cold war accommodations.

Now a further reorientation is likely. Also, the Soviets will use their trade and purchasing power for political purposes, in contrast to the free market practices which are typical of American business.

It will take a lot of effort and planning to beat the Soviets in a rivalry for trade, as Russia offers a vast market for West European manufactures—while the U.S. wants to sell, but is reluctant to buy.

* * *

TARIFFS UNDER GUN

Opening gun in the trade war has been fired not by the Russians but by other countries. The Swiss, protesting against the increase in U.S. tariffs on Swiss watches, point out that they may reduce their purchases from this country.

In this hemisphere, both the Cubans and the Venezuelans have gone to great lengths to show their importance as a market for American products, with the obvious inference that they are due special consideration.

These are just early indications of what is likely to develop. The U.S. purchasing agents will be in the front line in the trade war.

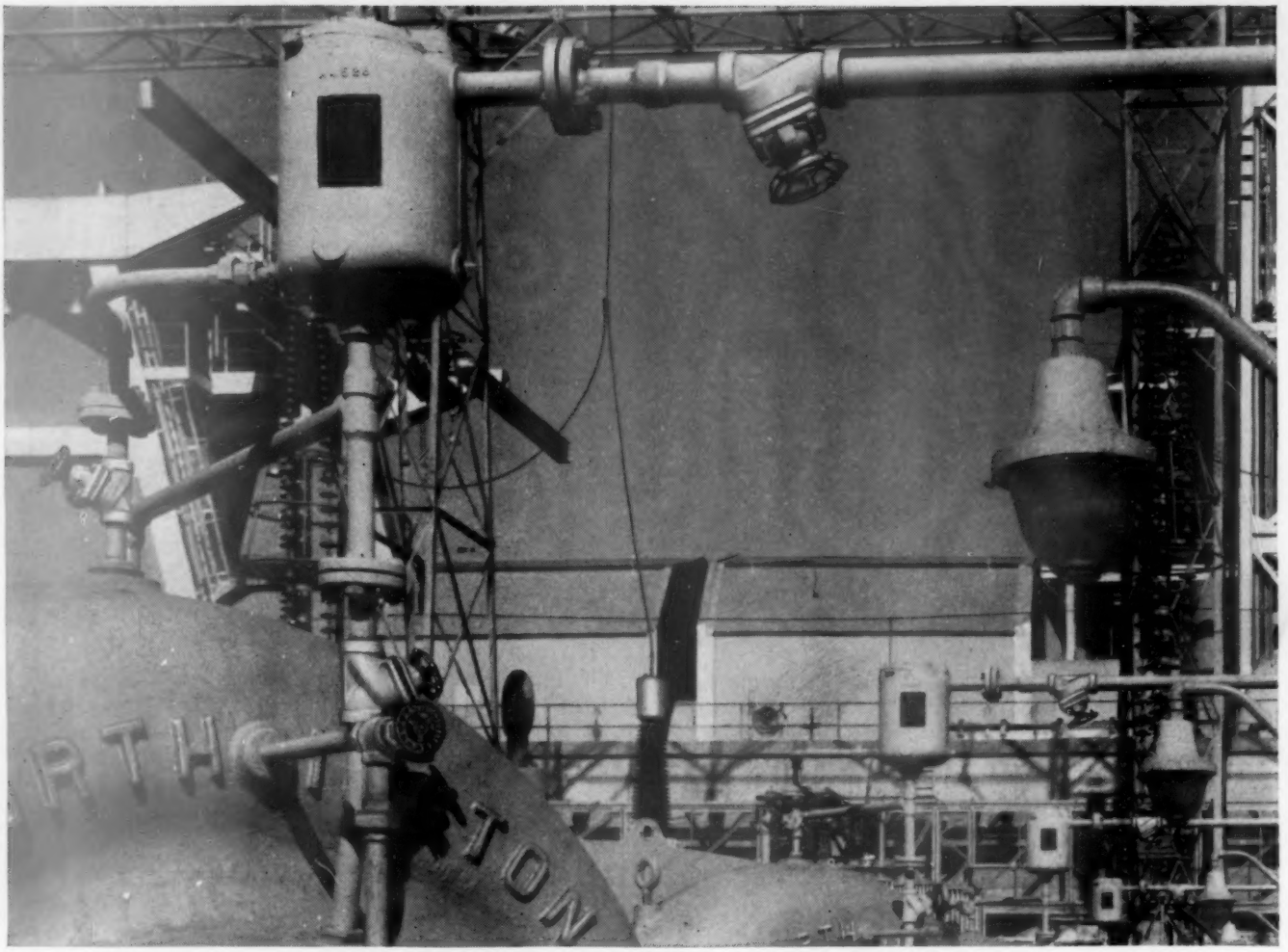
* * *

COMPANY MERGER REPORT

Federal Trade Commission is concerned with the large number of company mergers. Question is whether the mergers substantially reduce competition, and whether they cut off alternate sources of supply for the buyer.

First question is: In what industries have most of the mergers taken place? From 1948 to 1954, 249 mergers occurred in the non-electrical machinery industry, and 243 in the food products industry. The next 10 industry groups in which the most mergers occurred were chemicals, 168; fabricated metals, 161; transportation equipment, 125; textiles and apparel, 117; electrical machinery, 111; non-manufacturing, 96; mining, 81; primary metals, 78; stone, clay and glass, 70; and paper and allied products, 60.

Reasons for the mergers were the need for additional capacity; diversification of product; vertical mergers looking



Corrosive circulating water tamed here by these CRANE VALVES

THE CASE HISTORY—Almost 2 years' operation without any maintenance of valves on circulating water lines to condensers, and on priming and instrumentation systems—with no trouble in sight. That's the experience of Southern California Edison Company's 280,000 k.w. steam station at Etiwanda with Crane Packless Diaphragm Valves.

The plant's engineers knew that sediment in recirculated water would quickly cut out the seats in ordinary valves and its corrosive elements would attack working parts to make valve operation difficult.

Not so with Crane Packless Diaphragm Valves. Their sealed bonnet keeps working parts out of contact with line fluid—free of corrosive effects. Separate disc construction with pliable insert resists erosion—seats tightly even on foreign particles. Large or small, these valves operate easily with fewer turns to the cycle. Typical Crane quality throughout—they're made better to do the job better—a bigger value for the thrifty buyer.

CRANE No. 1610 PACKLESS DIAPHRAGM VALVES

No packing to maintain. Neoprene diaphragm has longer life because it seals the bonnet only—is not subject to the cutting and crushing encountered when also required to do the seating. Separate disc gives control of fluid even should diaphragm fail. Wide selection of materials and sizes. Write for folder AD-1942 or see your Crane Representative.

CRANE CO.

General Offices: 836 S. Michigan Ave., Chicago 5, Illinois
Branches and Wholesalers Serving All Industrial Areas

VALVES • FITTINGS • PIPE • KITCHENS • PLUMBING • HEATING

CRANE'S FIRST CENTURY . . . 1855-1955

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toward sources of supply; vertical mergers looking toward ultimate sale to consumers, and additional capacity located in new markets.

Other reasons included inability of smaller companies to get funds for expansion and modernization; surplus cash in the hands of the acquiring companies; aging owners who wish to retire, and the tax advantages accruing in a merger.

* * *

PRICES REMAIN STABLE

For the last 18 months, both wholesale and consumer prices have been at virtually a level figure. It has been the longest period of stable prices in our industrial history.

What happens in the months ahead may put a little more bounce in the price line. Another round of wage increases will reflect in prices, but the best forecasts indicate that the price increases are not likely to be sharply up.

Reason for the moderation in prices is that there has been no inflationary pressure—no scarcity of goods or materials. While there have been some shortages of specific materials, a supply of substitute materials kept prices within bounds.

With a large supply of materials, goods and services, there has been a tendency for the manufacturer to absorb increased costs of production—and to offset this higher cost factor through manufacturing and merchandising economies.

Past period when the price index remained stable longest was in 1928-29 in the 12-month period before the price break that heralded the depression.

Despite this similarity between the current trend and that before the '29 break, there are such major differences in our current economic position and that of the predepression era that the present price stability does not remotely suggest weakness.

* * *

BOOST FOR BUSINESS

From the standpoint of politics, the Republican Administration will make its best effort to boost the level of prosperity for next year to a level even higher than this year.

Election next year makes good times a must if the Administration is to have half a chance at another Presidential term.

To assure a high level economy, the Administration has been preparing a whole hatfull of tricks—such as a reduction in taxes and a sharp increase in Federal supported highway construction —and public works.

Also, the credit restrictions and high margin requirements on trading of securities allow a measure of relaxation that would tend to bolster trading.

* * *

PRICE SUPPORT POLICY

From the standpoint of materials prices, the Government program of buying for the national strategic stockpile has been slowed down by the high price of some of the strategic items. Any sag in price levels would bring in vigorous stockpile buying.

* * *

MILITARY SURPLUS DECRIED

Hoover Commission report on the Government's method of handling surplus property brought out the following classic summary of the relationship of surpluses to purchasing:

"Disposal of surplus property is the end function in a whole chain of supply activities. In a real sense, it measures the effectiveness of the supply system. If large surpluses accumulate, buying requirements were overestimated for various reasons. Along the way military stocks pile up in bulging warehouses, to emerge later as surpluses. Inadequate inventory controls and stocking of the same items under different names, descriptions, and identification numbers result."

The Hoover report took the military to task for a tendency to hoard supplies, the creation of layers of "reserves" to justify excessive stocks, lack of a common supply language, many duplications in supply activities and conflicts of authority.

The manufacture of circular weldments — rings and bands — has been an American Welding specialty for 37 years. Here you will find the men, the know-how and the equipment to form, weld and machine circular components for a wide variety of end products. Big ones (96 inches) or small ones (6 inches), of ferrous or non-ferrous metals including Titanium* or Aluminum, in production runs of hundreds, thousands, or ten thousands.

If your problem is "round and metallic" consult our Industrial Products Division. Write or call today — we will be glad to work with you.

*First successful Production Welding of Titanium Alloy was accomplished by American Welding in 1949.

Production Facilities Catalog

Find out what American Welding can do for you. Send for FREE Catalog today.

AMERICAN WELDING

THE AMERICAN WELDING AND MANUFACTURING CO. • 460 DIETZ RD. • WARREN, OHIO

For More Information Circle No. 115 on Inquiry Card—Page 17

SPECIAL SERVICE FOR READERS

You will want additional information about the equipment, materials, services or methods described or advertised in this issue of PURCHASING.

As a special service, our Reader Service Department will gladly and promptly arrange to have manufacturer's literature regarding any item in this issue sent directly to you.

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Circle numbers of items described or advertised in this issue. JULY, 1955 (not good after 9-15-55)

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NEW INFORMATION FOR YOUR

Catalog Files

CAN YOU USE MOLYBDENUM?

A booklet, NP-428, provides data on molybdenum properties, processing and product use. A flow chart shows how it is manufactured and quality controlled from oxide to end product.

Sylvania Electric Products, Inc.

Circle No. 1 on Inquiry Card—Page 17

MICROSCOPES ON ASSEMBLY LINE

A 38-page catalog, D-15, explains in detail value of wide-field, 3-dimensional microscopes for various assembly line and inspection operations. A model-selector card helps proper choice.

Bausch & Lomb Optical Co.

Circle No. 2 on Inquiry Card—Page 17

PALLETIZED CONDENSERS

An illustrated booklet tells how the cost of shipping, handling and installing condensers and heat exchangers can be reduced by use of U-bend expendable pallets. Pallets are custom-built.

Wolverine Tube Div., Calumet & Hecla, Inc.

Circle No. 3 on Inquiry Card—Page 17

INTEGRATED BOILER BURNER UNIT

Catalog No. 502 covers with text, photos, diagrams and drawings an integrated boiler burner unit for high or low pressure heating, power and process steam. It burns oil or gas.

Kewanee-Petro

Circle No. 4 on Inquiry Card—Page 17

EQUIPMENT FOR PROPER AGITATION

A guide to choosing the proper portable mixer and accessories for handling an extensive range of agitation jobs will be found in Catalog, 520-P. Units of 420, 1125 and 1725 rpm are covered.

Eastern Industries, Inc.

Circle No. 5 on Inquiry Card—Page 17

CHOOSING PROPER LIQUID LEVELS

Bulletin L701 treats of liquid level gages for indicating, recording, controlling and telemetering. Engineering data on the choice of the proper bulb and instrument for an installation are given.

The Bristol Co.

Circle No. 6 on Inquiry Card—Page 17

WOOD SCREWS IN MANY STYLES

Catalog No. WS-1 gives in 14 pages (4-colored) a complete line of wood screws, Phillips and slotted, flat, round and oval, in steel, brass, silicone bronze, stainless steel and other finishes.

Southern Screw Co.

Circle No. 7 on Inquiry Card—Page 17

AIRCRAFT FASTENER SERVES INDUSTRY

How an ingenious fastener, indispensable in aircraft manufacture, has been adapted for general industry is told in booklet TL-99. Two-color photos show how the rivet works.

Townsend Co.

Circle No. 8 on Inquiry Card—Page 17

WHERE MAGNETIC SEPARATORS FIT IN

A slim, 2-color, 24-page booklet features descriptions of how "Magnetic Ideas" have been applied with engineering know-how to solve many industrial problems. Uses of magnets are shown.

Eriez Mfg. Co.

Circle No. 9 on Inquiry Card—Page 17

IF YOU REQUIRE METAL FORMING

A colorful 12-page booklet outlines in picture-format facilities for handling sheet and plate fabrication. Listed are cold-formed shapes and fabrications available from various materials.

National Welding & Mfg. Co.

Circle No. 10 on Inquiry Card—Page 17

IS YOUR PLANT WATER HARD?

Troubles caused by the utilization of hard water and the many economies effected by curing them are discussed in a 20-page bulletin No. 2386-A. There are typical installation photos.

The Permutit Co.

Circle No. 11 on Inquiry Card—Page 17

HOW TO ORDER TAPS & DIES

A 36-page, 3-color catalog No. 22 lists a complete line of stock and special taps and dies. They conform to Metal Tool Cutting Institute standards. There are hints on ordering.

Winter Brothers Co.

Circle No. 12 on Inquiry Card—Page 17

DETROIT PUBLIC LIBRARY

WHERE PLASTIC TOOLS FIT

A 24-page "Manual For Reinforced Plastics Tooling" illustrated with photos, drawings and diagrams, describes the fabrication and use of plastic tools made from phenolics, polyesters, epoxies.

Marblette Corp.

Circle No. 13 on Inquiry Card—Page 17

TOOLING SPEEDS WELDING

Standard and special tooling, fixtures and machinery for high quality, high speed, low cost welding are discussed in a 40-page catalog. Dealt with are submerged arc processes.

Cecil C. Peck Co.

Circle No. 14 on Inquiry Card—Page 17

SELECTING COAXIAL CABLES

The 3-color catalog W1 is a compendium of information on plastic insulated coaxial cables and transmission lines. It lists Military RG/U nomenclature. It has a cable/connector selector chart.

American Phenolic Corp.

Circle No. 15 on Inquiry Card—Page 17

WHERE MAGNETIC AMPLIFIERS ARE USED

Technical aspects of magnetic amplifiers for control applications are discussed in a 20-page booklet, Technical Data 52-600. Photos show units designed for various typical applications.

Westinghouse Electric Corp.

Circle No. 16 on Inquiry Card—Page 17

PUMPS HANDLE VARIED LIQUIDS

Type O horizontal split case, double suction centrifugal pumps for handling circulating and wash water, chemical solutions and oils are covered in 8-page bulletin, 105-B.

Aurora Pump Div.,
New York Air Brake Co.

Circle No. 17 on Inquiry Card—Page 17

DRILL & REAMER FACTS

A 40-page booklet shows how smoother and more accurate holes are obtained and production increased if drills and reamers are properly selected and maintained. Designs are given.

Whitman & Barnes

Circle No. 18 on Inquiry Card—Page 17

OVERHEAD TRANSMISSION LINES

Information on selecting and installing accessories needed with aluminum wires and cables for overhead electrical transmission lines is contained in a 16-page illustrated manual.

Reynolds Metals Co.

Circle No. 19 on Inquiry Card—Page 17

INDUCTION-HEATING EQUIPMENT

Bulletin No. 85-871 describes in 8 pages a complete line of induction-heating equipment for such operations as hardening, annealing, brazing, forging and heat-treating of metals.

Westinghouse Electric Corp.

Circle No. 20 on Inquiry Card—Page 17

MOLDED RUBBER GOODS AS SPECIFIED

Bulletin H-20 deals with molded rubber goods and industrial sheet packing produced to fulfill specific requirements of original equipment manufacturers. Qualities of many types are listed.

Hewitt-Robins, Inc.

Circle No. 21 on Inquiry Card—Page 17

AVOID FLAMMABLE LIQUID, ELECTRICAL HAZARDS

A pressure-operated, carbon dioxide fire extinguishing system to cope with flammable liquid or electrical hazards is described in a 16-page illustrated brochure.

Walter Kidde & Co.

Circle No. 22 on Inquiry Card—Page 17

STOPPING AIR LOSSES FROM COMPRESSORS

An engineering service bulletin, Form 213-A, shows how as much as 50% loss of air can occur in compressed air lines. It gives, step by step, procedures to bring a system up to full standards.

Ingersoll-Rand Co.

Circle No. 23 on Inquiry Card—Page 17

HOW TO SELECT DIE SPRINGS

Complete information on three lines of die springs is given in a 20-page illustrated catalog. A simplified method of spring selection is included, making correct choice of size easy.

Danly Machine Specialties, Inc.

Circle No. 24 on Inquiry Card—Page 17

LIGHT CONTROLS BENEFITS DESCRIBED

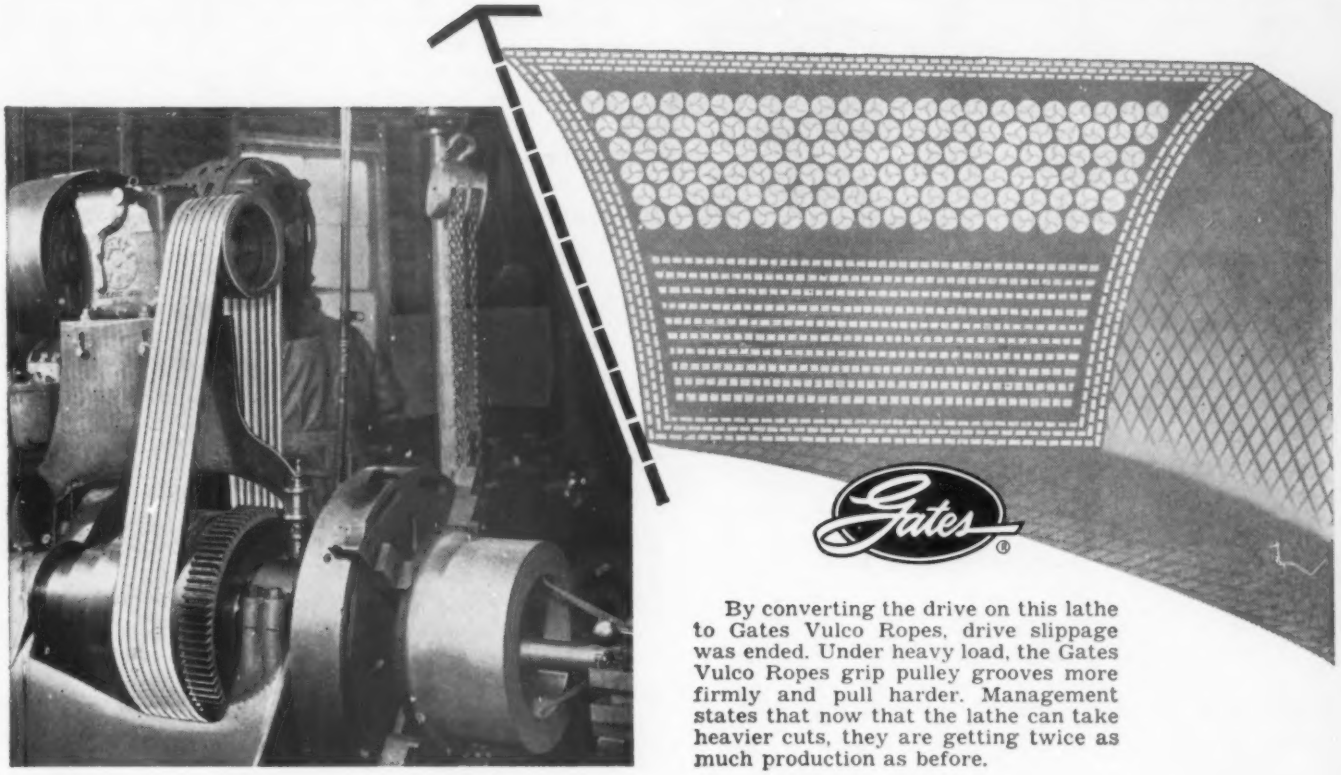
Pointing out the benefits of being able to dim, brighten or control lights as needed, a 12-page booklet describes light controls available for capacities from 1,000 to 30,000 watt.

The Superior Electric Co.

Circle No. 25 on Inquiry Card—Page 17

Circle Card Opposite Page 17
to Obtain These Catalogs
Additional Catalogs on Page 20

"Secret" of *lower* belt costs is concave sides



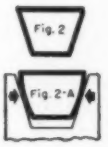
By converting the drive on this lathe to Gates Vulco Ropes, drive slippage was ended. Under heavy load, the Gates Vulco Ropes grip pulley grooves more firmly and pull harder. Management states that now that the lathe can take heavier cuts, they are getting twice as much production as before.

Plants that keep track of costs on drives know this: they get longer wear at *lower cost per year of service* when they specify Gates Vulco Ropes—the V-Belts with *concave sides.*

Here's WHY concave sides keep belt costs down:

When the Gates belt is bent around the sheave, the *precisely engineered* concave sides (Fig. 1) fill out and become straight (Fig. 1-A). Thus the belt makes uniform contact with the sides of the pulley.

This full, uniform contact assures *even distribution of wear.* Naturally, *even wear* means *longer wear.* And longer wear cuts belt replacement costs...reduces down time...contributes to profits.



Prove to yourself the value of concave sides

Bend a straight-sided belt (Fig. 2) and feel the sides *bulge out* around the bend. You see immediately that the bulging sides prevent an even fit in the pulley groove (Fig. 2-A). Uneven contact causes faster wear...increases belt replacement costs.

Reduce costs and down time for belt replacements—specify Gates Vulco Rope Drives—the V-Belt with *concave sides* (U.S. Patent 1813698). The Gates Rubber Co., Denver, Colorado—*World's Largest Maker of V-Belts.*

Gates Engineering Offices and Distributor Stocks are located in all industrial centers of the United States and Canada, and in 70 other countries throughout the world.

TPA 46-A

GATES VULCO ROPE DRIVES

For More Information Circle No. 116 on Inquiry Card—Page 17

REPAIR COILS FOR WATER HEATERS

All types of repair coils for water heaters, with full specification, are covered in bulletin No. 55-01. Even repair coils for water heaters no longer manufactured are listed and described.

Dormont Mfg. Co.

Circle No. 26 on Inquiry Card—Page 17

SOLDERLESS ELECTRICAL TERMINALS

Almost 500 terminals and connectors for maintenance and repair of electrical equipment using wire sizes from #22 to 4/0 are listed in a 28-page catalog. Wiring kits are also featured.

American Pamcor, Inc.

Circle No. 27 on Inquiry Card—Page 17

PRECISION TOOLS FOR MECHANICS

Catalog No. 27 (482 pp) is a full guide to over 3000 types of hand measuring tools, precision instruments, steel tapes, dial indicators, hacksaws, band saws, bond knives and flat stock.

The L. S. Starrett Co.

Circle No. 28 on Inquiry Card—Page 17

TAPES WITH MANY APPLICATIONS

A two-color catalog provides detailed performance and application information about self-bonding insulating, electrical filler, types C & H electrical jacketing and vinyl tapes.

Bishop Mfg. Corp.

Circle No. 29 on Inquiry Card—Page 17

WHAT'S NEW IN INDUSTRIAL INFRARED?

A house organ, "Radiant Heating News," seeks to promote greater use of industrial infrared. Case histories compare performance on infrared ovens with convection types.

Fostoria Pressed Steel Corp.

Circle No. 30 on Inquiry Card—Page 17

AID TO RIVET SELECTION

At the flick of a finger, a 4" x 8" slide rule selector provides everyone who selects, specifies or uses rivets with dimensions, clinch allowances and clearance of standard types.

Milford Rivet Co.

Circle No. 31 on Inquiry Card—Page 17

A SAFE WORKSHOP

Industries using hand guards, protective aprons, tool holders and other equipment, where protective qualities of leather are required, will be interested in new safety equipment catalog.

Graton & Knight Co.

Circle No. 32 on Inquiry Card—Page 17

LIFT WITH ELECTRO-MAGNETS

The construction and application of a complete line of electro magnets, including the latest all-welder type, are dealt with in a 24-page copiously illustrated booklet.

Cutler-Hammer Inc.

Circle No. 33 on Inquiry Card—Page 17

METAL WORKING PRODUCTION

Facilities in six plants for various engineering services available to other manufacturers who require contract production of close tolerance components are described in 24-page book.

New Process Gear Corp.

Circle No. 34 on Inquiry Card—Page 17

GANG SLITTERS FOR INCREASED PRODUCTION

A full line of gang slitters and accessory equipment for handling metals and certain types of plastics, fibres or paper is illustrated and described in Circular No. 898-S-2.

Waterbury Farrel & Machine Co.

Circle No. 35 on Inquiry Card—Page 17

ELECTRONIC PRODUCTS DESCRIBED

Catalog No. 20 (20-pages) supplies data on catalogs and other vacuum tube components. Dimensions and tolerances of standard round and shaped cathodes are tabulated, with illustrations.

Superior Tube Co.

Circle No. 36 on Inquiry Card—Page 17

REDUCING FASTENING COSTS

Devoted entirely to problem of running nuts, bolts, cap screws and other type fasteners, Catalog No. 5200-A furnishes case histories of impact tools effectively reducing fastening costs.

Ingersoll-Rand

Circle No. 37 on Inquiry Card—Page 17

CORROSION PREVENTION

A booklet gives a detailed explanation of vapor phase inhibiting wrapping paper and the chemical action that occurs to halt rusting on ferrous metals and aluminum. Packaging hints are given.

Angier Corp.

Circle No. 38 on Inquiry Card—Page 17

PRECISION TOOLS, TAPES, RULES

Catalog No. 8, pocket size, covers precision tools in 160 illustrated pages. Catalog No. 104, of same size, deals with tapes and rules. Catalog No. 14 is 7½" x 10½" combination of both.

Lufkin Rule Co.

Circle No. 39 on Inquiry Card—Page 17

AUTOMATIC CONTROLS IMPROVE PERFORMANCE

Bulletin No. S-10 describes in detail how to arrive at the right application of an automatic control system for improved machine and process performance. Case histories are supplied.

Automatic Temperature Control Co., Inc.

Circle No. 40 on Inquiry Card—Page 17

Circle Inquiry Card Opposite Page 17 to Obtain These Catalogs

Additional Catalogs on Page 270

POWELL VALVES . . . THE COMPLETE QUALITY LINE . . . POWELL VALVES

. . . THE COMPLETE QUALITY LINE . . . POWELL VALVES . . . THE COMPLETE QUALITY LINE . . .

POWELL LUBRICATED PLUG VALVES

FIG. 3059G—300-Pound Steel Flanged End Valve. Sizes 6″ to 12″.

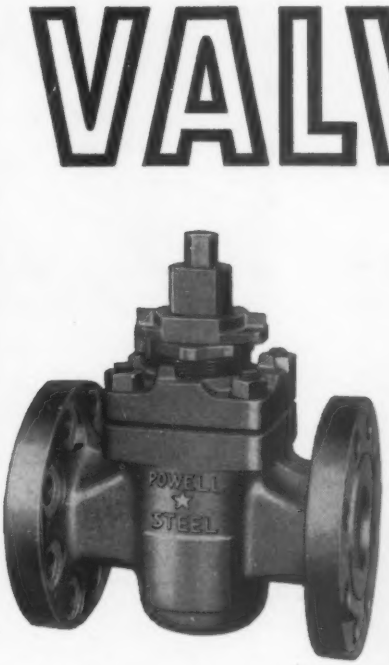


FIG. 1559—150-Pound Steel Flanged End Valve. Sizes 1″ to 4″.

POWELL VALVES . . . THE COMPLETE QUALITY LINE . . . POWELL VALVES

Powell Valves—the *complete* quality line—offer many outstanding features in these new Lubricated Plug Valves, such as quick and sure operation and a positive seal when the valve is closed.

Valves are available with screwed or flanged ends; single, screwed and bolted gland types, and in Semi-Steel, Carbon Steel, Bronze, Ni-Resist, Monel Metal, and Stainless Steel. Semi-Steel valves are rated 175 and 200 pounds W.O.G.; Steel valves, 150 and 300 pounds W.P. Sizes from 1″ to 12″. Valves in sizes 6″ and larger can be furnished with gears for gear operation. Distributors located in principal cities. For descriptive literature—or help on valve problems—write direct to

The Wm. Powell Company, Cincinnati 22, Ohio..... 109TH year

For More Information Circle No. 117 on Inquiry Card—Page 17

NEWS OF YOUR Suppliers

The appointment of Norman L. Deuble as manager of the newly created metallurgical development division, has been announced by **Climax**

N. L. Deuble

Molybdenum Co., New York. Mr. Deuble's division will explore, develop and disseminate technical information on the use of molybdenum in alloy steels, particularly in the automotive, farm equipment and tractor, mining and earthmoving equipment, and petroleum and refining fields.

The new district manager for the Buffalo sales district of **Cutler-Hammer, Inc., Milwaukee,** is R. L. Hibbard. Mr. Hibbard, who had been branch manager in Saginaw, Mich., is succeeded at that post by K. L. Smith.

The American Silver Co., Flushing, N. Y., has made James H. Lawrence its southwest sales representative. Mr. Lawrence, who will headquarter in Dallas, will handle Texas, Oklahoma, Arkansas, Louisiana, Mississippi and the city of Wichita, Kansas.

Howard S. Bunn has been elected executive vice president and a member of the executive committee of **Union Carbide and Carbon Corp., New York.** Mr. Bunn has been with Union Carbide since 1922.

Ampco Metal, Inc., Milwaukee, has announced new distributors in various sections of the country. They are: The Pacific Metals Co., Ltd., with offices in San Francisco and Los Angeles; McDonald & Wilson Sales Co., St. Louis, Mo.; Miller Equipment Co., Cincinnati; and Red Arrow Sales Corp., Madison, Wis.

The H. A. Wilson Co., Union, N. J., producer of thermostatic materials and precious metal and sintered electrical contacts, has named Harry A. Wilson, Jr., as vice president. Mr. Wilson, who recently joined the company, has been with Bohn Aluminum and Brass Corp. for the past 20 years.

E. W. Niskala

The appointment of Elmer W. Niskala as general sales manager has been announced by the **Burroughs Manufacturing Co., Kalamazoo, Mich.**

A new southeast sales district has been established by **Hewitt-Robins Inc., Stamford, Conn.,** with Charles A. Thompson, former head of the company's Charleston, W. Va. office, as manager. Located in Charlotte, N. C., it will cover Florida, Georgia, North and South Carolina, Virginia, West Virginia, eastern Kentucky and eastern Tennessee.

Robert S. Stevenson has been elected president of **Allis-Chalmers Mfg. Co., Milwaukee,** to succeed the late William A. Roberts. Mr. Stevenson has

R. S. Stevenson

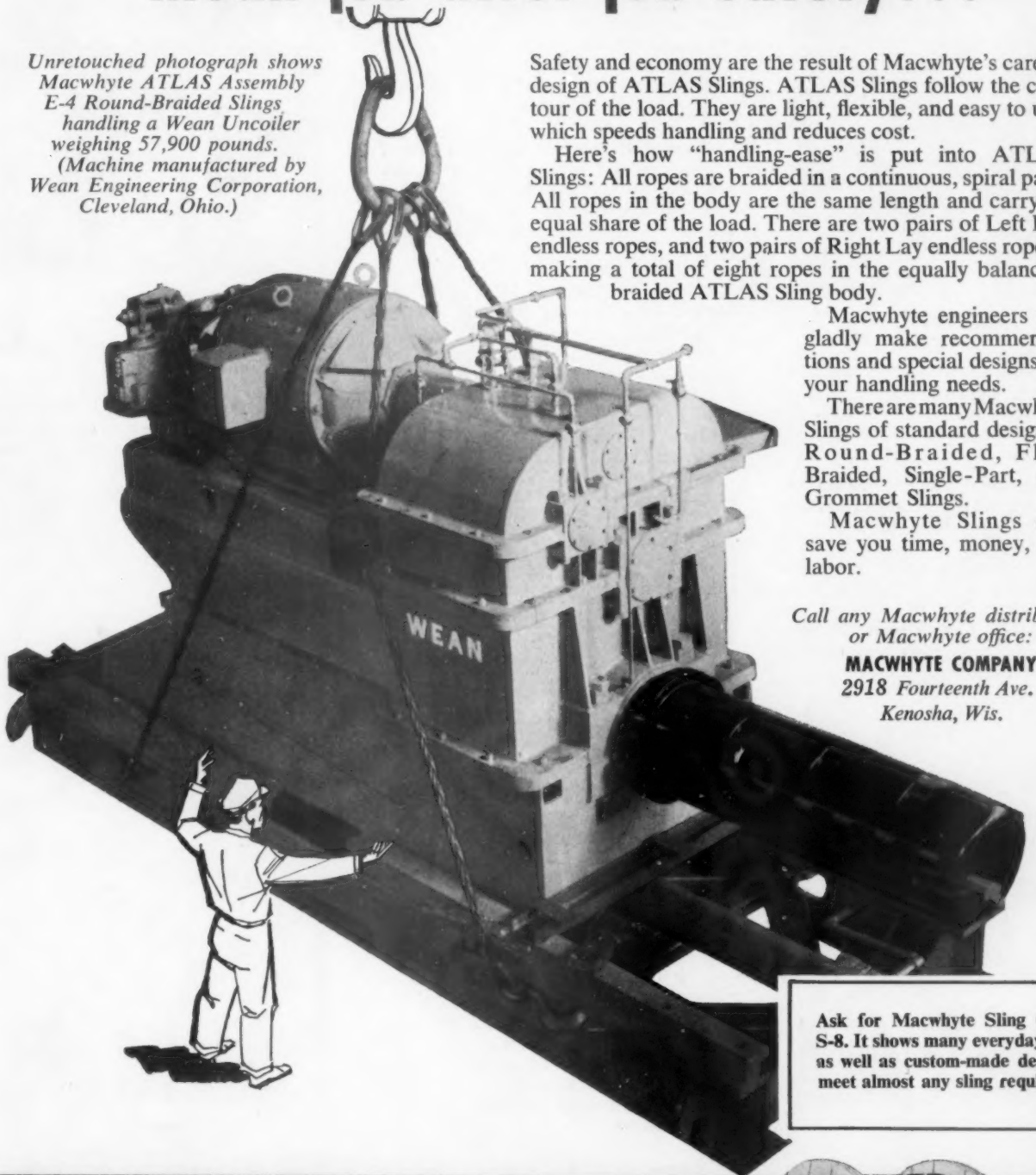
been executive vice president of the company since July, 1952. He started with Allis-Chalmers as a salesman in the Tractor Division in 1933.

Factory Sales & Engineering, Inc., New Orleans, has been appointed a sales representative by **J. F. Pritchard and Co. of California, Kansas City, Mo.** Factory will handle the southern half of Louisiana and the southern two-thirds of Mississippi.

The Indianapolis Sales Division, Bemis Bro. Bag Co., St. Louis, Mo., has announced organizational changes designed to concentrate sales activities and increase sales coverage in Indiana, Ohio, Kentucky and Michigan. Three senior salesmen have been appointed sales supervisors and will report directly to A. C. Greer, sales manager of the territory. U. E. Philpott, formerly plant merchandiser at the Indianapolis plant, will supervise sales in Indiana and Ohio. R. C. Thomas, former sales representative in Grand Rapids, will be in charge of the Detroit sales office and supervise sales in Michigan. F. H. Schardt, manager of the Louisville sales office will handle Kentucky.

Flexible, lightweight ATLAS Slings mean job-after-job safety...

Unretouched photograph shows Macwhyte ATLAS Assembly E-4 Round-Braided Slings handling a Wean Uncoiler weighing 57,900 pounds. (Machine manufactured by Wean Engineering Corporation, Cleveland, Ohio.)



Safety and economy are the result of Macwhyte's careful design of ATLAS Slings. ATLAS Slings follow the contour of the load. They are light, flexible, and easy to use, which speeds handling and reduces cost.

Here's how "handling-ease" is put into ATLAS Slings: All ropes are braided in a continuous, spiral path. All ropes in the body are the same length and carry an equal share of the load. There are two pairs of Left Lay endless ropes, and two pairs of Right Lay endless ropes—making a total of eight ropes in the equally balanced-braided ATLAS Sling body.

Macwhyte engineers will gladly make recommendations and special designs for your handling needs.

There are many Macwhyte Slings of standard design in Round-Braided, Flat-Braided, Single-Part, and Grommet Slings.

Macwhyte Slings can save you time, money, and labor.

Call any Macwhyte distributor, or Macwhyte office:

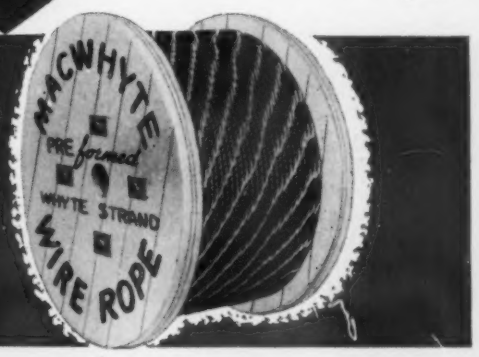
MACWHYTE COMPANY
2918 Fourteenth Ave.
Kenosha, Wis.

Ask for Macwhyte Sling Catalog S-8. It shows many everyday slings, as well as custom-made designs to meet almost any sling requirement.

10798

MACWHYTE

WIRE ROPE · SLINGS · WIRE ROPE ASSEMBLIES



John A. O'Reilly has been made district sales manager for the New Orleans territory of **DeWalt Inc., Lancaster, Pa.** His territory will consist of

J. A. O'Reilly

Alabama, Arkansas, Louisiana, Mississippi and that portion of Florida west of Bristol (Liberty County). He will headquarter in New Orleans.

Ohio Seamless Tube Division of Copperweld Steel Co., Shelby, O., has named three employees to important posts as members of the company's sales executive team. Sales and marketing activities will be led by J. E. Horner as manager of sales, J. J. Arntz as assistant sales manager, and M. W. Freese, promotion and market development manager.

R. I. Mitchell

Ray I. Mitchell has been promoted to sales manager by **Vulcan Steel Container Co., Birmingham, Ala.**

The assistant manager of the Atlantic region for **Westinghouse Electric Corp., Pittsburgh,** is T. P. Jones. Headquarters for the region is in Philadelphia. In addition, T. E. Stieber has been named Philadelphia district manager, and Robert N. Anderson has been made electric utility manager, Atlantic region.

Barber-Colman Company's Wheelco Instrument Division, Rockford, Ill., has announced several additions to its field organization. H. V. King, formerly of the Chicago office, is now with the Philadelphia group. Harold Sieber, of Philadelphia, has joined the service organization. D. Combellack, formerly associated with the Detroit office, is now located at Atlanta, Ga. And, Henry Hoffman, who was with the Cleveland branch office, is now managing the Columbus, Ohio, sub-branch office.

Charles A. Schmidt has been named product sales manager for AB breakers for **Federal Pacific Electric Co., Newark.** He will supervise the sale of all molded case breakers except Stablok.

The Schield Bantam Co., Waverly, Iowa, has appointed Buel M. Wallis as general sales manager. He was formerly general sales manager of the Adams Division, LeTourneau-Westinghouse Co., Indianapolis.

Lincoln Engineering Co., St. Louis, manufacturer of lubricating equipment, has announced two vice presidential promotions. Carl H. Mueller is now

C. H. Mueller

J. E. Renner

vice president in charge of engineering, and John E. Renner is vice president in charge of sales. Both men have been with the company for 20 years.

Kopp Glass, Inc., Swissvale, Pa., has announced the appointment of Willard A. Provost as assistant sales manager, and John E. Bright as manager of the New York sales office.

The promotion of Loyd E. Williams to manager-distribution, has been announced by **Cummins Engine Co., Inc., Columbus, Ind.** He succeeds Paul J. Every, who is now assistant general sales manager.

Gaines-Collins, Los Angeles, manufacturers of automatic pipe threading machines and cutters, have appointed three new representatives. John Phillip Schoenfeld will cover Virginia, the northern half of North Carolina, District of Columbia, lower Delaware, and Maryland; Bert Lewyn will handle Georgia, South Carolina, and eastern Tennessee; and George Christopher will operate throughout the part of Colorado east of the continental divide, western Nebraska, southwestern South Dakota, and eastern Wyoming.

Richard W. Snyder has been made sales manager of the **Electrical Division, Olin Mathieson Chemical Corp.,**

R. W. Snyder

New York. He will headquarter in New Haven, Conn.

Kidd Drawn Steel Co., Aliquippa, Pa., has announced two new sales representatives on the West Coast. Alexander H. Gaal will cover California, Arizona and Nevada from his headquarters at Pasadena. Robert H. Cremere will handle the Pacific Northwest from Portland, Ore.

The appointment of Dr. W. D. Thompson as sales manager, miscellaneous paper chemicals, has been announced by the **Paper Makers' Chemical Dept., Hercules Powder Co., Wilmington, Del.**

R. C. Overstreet

The election of Robert C. Overstreet as president has been announced by **Tinnerman Products, Inc., Cleveland.**

Yates-American Machine Co., Beloit, Wis., has named L. J. Bramble as national sales manager of the Woodworking Machinery Division.

Additional News of Your Suppliers will be found following the Industrial Development section

WATSON-STILLMAN FORGED STEEL FITTINGS FOR: *Safe, Tight Connections* in pressure piping

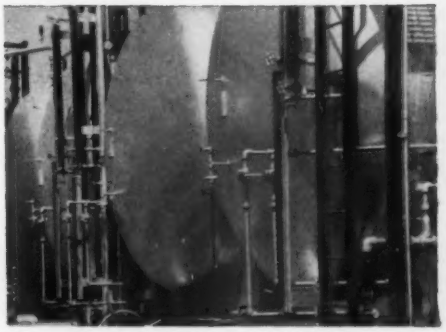
■ In high pressure steam lines... process liquid and gas piping... hydraulic fluid lines... wherever strong, tough pipe joints are needed, Watson Stillman Forged Steel Fittings provide a safety factor against costly piping failures. They resist pressure, heat, corrosion, shock and vibration because they're drop-forged of high quality steel to produce a dense, tough, forged-fiber structure that can really take it.

Extra strength is built into W-S fittings in other ways too... such as the heavy reinforcing bands extending well beyond the threads or sockets.

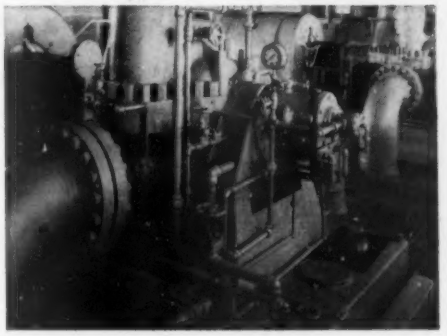
Protect your high pressure piping system with Watson-Stillman Forged Steel Fittings. Available in carbon, stainless and alloy steels, in Screw-End and Socket-Welding Types to meet your service requirements. Send today for Free Catalogs.

Bulletin A3-50—Forged Steel Fittings
Bulletin S-1-55—Stainless and Alloy Fittings
Bulletin U-1—Forged Steel Unions
Bulletin S-3-55—150 lb. Stainless Fittings

Sold Through Leading Distributors



• *Process Liquid and Gas Piping*



• *High Pressure Lines*

WATSON-STILLMAN FITTINGS DIVISION

H. K. Porter Company, Inc.
Roselle, N. J.

14

For More Information Circle No. 119 on Inquiry Card—Page 17

for fast, nearby delivery of special steels

You'll like the speedy, careful service that's *standard* at your nearby Crucible warehouse.

Each warehouse maintains large stocks of uniform high-quality special steels, in practically all sizes and grades . . . continuously replenished from our own mills. That's why deliveries are always prompt and reliable – usually within hours of your call.

So, for one-day service on special steels of any kind – call Crucible – *big enough to serve you . . . small enough to want to.*

Stocks maintained of:

Rex High Speed Steel . . . ALL grades of Tool Steel (including Die Casting and Plastic Die Steel, Drill Rod, Tool Bits, and Hollow Tool Steel Bars) . . . Stainless Steel (Sheets, Bars, Wire, Billets, Electrodes) . . . Max-el, HY-Tuf, AISI Alloy . . . Onyx Spring, Hollow Drill Steel and other special purpose steels.

CRUCIBLE WAREHOUSE SERVICE

Crucible Steel Company of America

General Sales Offices, Oliver Building, Pittsburgh, Pa. Branch Offices and Warehouses: Atlanta • Baltimore • Boston • Buffalo • Charlotte • Chicago Cincinnati • Cleveland • Dayton • Denver • Detroit • Houston • Indianapolis • Los Angeles • Milwaukee • Newark • New Haven • New York • Philadelphia Pittsburgh • Providence • Rockford • San Francisco • Seattle • Springfield, Mass. • St. Louis • St. Paul • Syracuse • Toronto, Ont.

For More Information Circle No. 120 on Inquiry Card—Page 17

DISSTON

HAS THE EDGE®

Ask for Disston Super-Safe Hack Saw Blades

and blades that hold it!

to give you faster, straighter power hack sawing

Here's the sharpest, cleanest cutting machine hack saw blade the industry has ever seen. These blades set a new standard of quality and safety. They are completely new—made by new methods, with the latest equipment. No wonder they easily meet the toughest production requirements.

Let us show you how much you will benefit. Call your Disston Distributor today. He'll put on a practical demonstration *right in your shop*. He'll let you make your own side by side comparison tests on your own machines. Also ask him about Disston's complete line of *Hand* Hack Saw Blades and Frames—for the same economies and results.

For prompt service, expert advice, reliability, many economies, on these and other Disston metal cutting products—Files, Band Saws or Solid and Inserted Tooth Metal Circular Saws, rely on your Disston Distributor. You'll get far more for your tool dollar.

send for this FREE production help!

Write for handy folder on Disston hack saw blades. It includes helpful hints to your shop men on the right number of teeth, feed and stroke—for various metals. It can save hours of production time.

Name_____ Title_____

Company_____

Address_____

Mail to Henry Disston & Sons, Inc., **633** Tacony, Philadelphia 35, Pa., U.S.A. In Canada, 2-20 Fraser Ave., Toronto 3, Ont.

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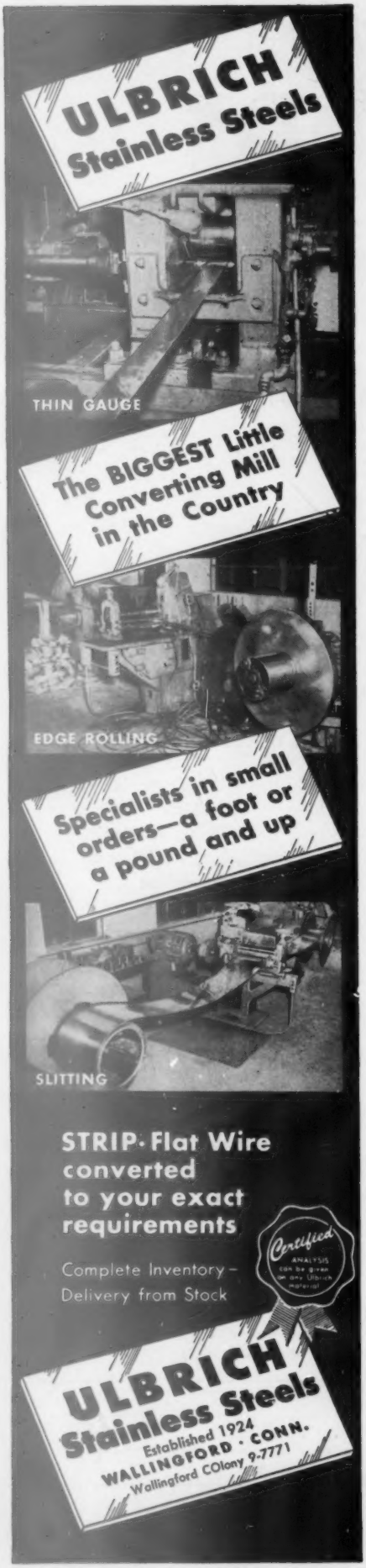

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F.O.B.

FILOSOFY OF BUYING

WHEN Nekoosa-Edwards Paper Company of Port Edwards, Wis., recently prepared a new "Welcome" booklet for reception room use, setting forth in tabloid form a bit of the company history, policy, organization, and facilities, the first distribution was made to employees. The community relations people in the organization reasoned logically that if it was desirable for visitors to have such information, it was equally important for all company personnel to be similarly informed. There's a good idea here for purchasing departments, which generally initiate such welcome booklets or folders as a part of their own public companies' "internal" public relations activities.

• •

SALESMEN may be interested in a recent bulletin issued by a national research organization to its staff of field interviewers on the intriguing topic, "Getting the Foot in the Door." Interviewers, like salesmen, it seems, sometimes have trouble breaking through the "petticoat curtain" of the receptionist and getting to see the man behind the office door. Well, here's the sure-fire formula: *"The most important thing is to dispel the idea that you might be selling something."* Salesman's problem is still unanswered.

• •

A PROMINENT business commentator, discussing abuses in the handling of union health and welfare funds, notes that the Machinists have issued a union code of ethics for their locals to prevent or clean up graft. He points out that the Machinists have an exceptionally clean record in this respect, which reminds us of the old and slightly skeptical observation that ethical codes are for the ethical.

• •

WHAT is the scarcest item to find and buy? An ordinary cork stopper, says columnist Elizabeth Clarkson Zwart of the Des Moines *Tribune* who recently tried to get a couple of little corks for the bottoms of a pair of salt shakers. The corner drug store seemed a likely source, but every bottle in his shop had a snap-on top or a plastic screw cap. The hardware dealer and the manager of a variety store shook their heads—no call for corks any more. The drug wholesaler sadly reported that his business in corks was down to less than 1% of what it was in 1950—he had just job-lotted his last cork finished bottles at a cut price to get rid of them. Her search finally ended at the toy counter in a dime store, where she was able to pick up a little sack of *popgun corks* which could be whittled down to size.

Along the way, she collected quite a little information about this technological obsolescence of a once-common item in American life. The drug wholesaler gave her a couple of leads on his few remaining customers. At Western Tool and Stamping Co., P. A. Carl Mains said, "Don't laugh. In making lawnmowers we paint a lot of tubing, and we

still use corks to keep the paint from running down inside." The P. A. at Firestone, L. W. Bingaman, told her that some of the lab men still insisted on corks—a few dozen a year—for sealing test tubes and flasks; it had always been done that way.

These apparently represented the last frontier. The liquor dealer reported that more bottled Bourbon every month is using other types of closures. Most of the imported wines and liquors are still corked, but there are ugly rumors that the loudest and happiest cork of all, on French champagne, is being replaced with a synthetic rubber plug. Superintendent of Fisheries K. M. Madden said that the world's laziest cork, the bobber on a fish line, is fast disappearing from Iowa's streams; substitute is not specified—maybe balsa. The sporting goods dealer was almost patronizing. The busiest cork in the world—badminton's feathered "bird"—is quite outmoded; modern game sets provide birds of rubber or plastic.

• •

WHAT'S the market for obsolete fire fighting equipment? City P. A. Charlie Healey of Springfield, Mass., faced with the task of disposing of a 61-year-old horse drawn water tower found that he had a real museum piece. The venerable apparatus attracted eight bidders and found a permanent home in a Connecticut antique museum.

Less fortunate was City P. A. Ward of Chicago, who put 18 obsolete fire trucks on the block last December. It looked bright when a prospective buyer from Lorain, Ohio, mailed in a bid for the entire lot at a price higher than the city had hopes to realize. But closing the deal proved to be a different story. After four months of fruitless correspondence and telephone conversations, vague postponements and broken appointments, Ward checked on his customer through the authorities at Lorain. They knew him well—as a penniless crank with grandiose ideas for turning a fast buck. Only recently he had bid $1½ million for the purchase of a federal housing project, and was awarded the contract until it was found that he had no funds.

"He just likes to bid, but has no money to buy with, and the people with money just aren't bidding," said Ward sadly as he put the lot up for sale once more. Wanna buy an obsolete fire truck?

SPECIAL WIRE CLOTH PARTS

Just to name a few . . . and most of the parts we are making to special order don't really have a name! Our real specialty is fabricated wire cloth parts, made to your specifications.

Any metal, almost any size, almost any shape . . . we can probably assemble it for you . . . faster, better and at a lower cost, than you can do it yourself.

For more information, just send for our latest Fabricated Parts Catalog.

NEWARK for ACCURACY

Newark Wire Cloth COMPANY

351 VERONA AVENUE • NEWARK 4, NEW JERSEY

For More Information Circle No. 123 on Inquiry Card—Page 17

What are the men doing?

They are retubing the fuel economizer.

What happened to the old tubes?

Sulphuric acid ate holes in them.

Who put sulphuric acid in the fuel economizer?

Well, nobody meant to. But there was too much sulphur in the coal and when the coal burned some of the sulphur was turned to sulphuric acid.

Why did they purchase the high sulphur coal?

It figured out cheaper on the cents-per-million-BTU basis.

But was it really cheaper by the time they put the new tubes in?

No, it wasn't! And this instance shows that BTU cost is not the only factor to be considered in buying fuel. It's a matter of matching fuel to use and to equipment, and that requires close cooperation between the plant engineer and the purchasing agent.

P.S.

There's a lot more to buying coal than the cost per ton. For facts and figures to solve your particular fuel requirements, write to: R. C. Riedinger, General Coal Traffic Manager, Chesapeake & Ohio Railway Company, Terminal Tower, Cleveland 1, Ohio.

Chesapeake and Ohio Railway

WORLD'S LARGEST CARRIER OF BITUMINOUS COAL

Complete BROACH TOOLING for Customer's Machines

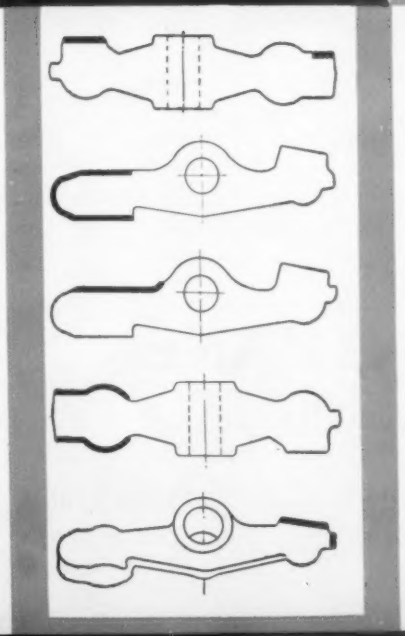
CONTINENTAL CAN RETOOL YOUR PRESENT BROACHING EQUIPMENT FOR HIGH PRODUCTION AND INTERCHANGEABILITY, AT MINIMUM COST

These forged steel rocker arms are economically processed with Continental designed and built broaches, holders and fixtures. The work is done in five operations on two vertical surface broaching machines, one having a single ram and the other a dual ram.

More and more manufacturers are turning to broaching for machining production parts. It's the fastest method of removing stock to precision limits. For a quotation on tooling for your broaching machines call in your local Ex-Cell-O Representative or contact the Continental Division of Ex-Cell-O in Detroit.

Here is the fixture and broach tooling for the first operation.

THE HEAVY LINES INDICATE THE METAL REMOVED IN EACH OF THE 5 OPERATIONS



OPERATION 1: Finish broach thrust face and broach locating surface at opposite end. Operation is done on single-ram vertical surface broach machine. Work is located in fixture on floating pin, which allows part to rest firmly on lower anvils when clamped. Spring loaded jacks are wedge locked automatically. Broaches for both cuts are carried in one holder. The only change necessary to accommodate opposite hand parts is to exchange adapters on the fixture.

SEE EX-CELL-O AT THE MACHINE TOOL SHOW CHICAGO, SEPT 6-17 BOOTH 1319

Continental CTW TOOL WORKS

Division of EX-CELL-O Corporation, Detroit 32, Mich.

55-30

YOU FURNISH THE PRINT, WE'LL FURNISH THE PART

16 MM. FILM SPOOL OF SYNTHANE LAMINATED PLASTIC RESISTS PHOTOGRAPHIC CHEMICALS, HOLDS SHAPE, DOESN'T FOG FILM.

The film spool we're talking about is one used in the processing of movie film. The material for this spool has to be light in weight, strong and easily machined. Since it is always in contact with film and photo solutions, it must also be chemically-resistant and—most important—not fog the film by chemical contamination.

This isn't an easy assignment for any material, but *Synthane* fills the bill.

Whenever you want parts requiring many properties, consider how *Synthane's* combined benefits may help you improve your product.

Synthane produces finished parts from many different grades of *Synthane* laminated sheets, rods, tubes and molded-laminated and molded-macerated parts. Service and quality characterize *Synthane* fabrication.

We can handle the whole iob for you from your print to the finished part—eliminating your tooling-up, reject and machining problems—and producing parts of excellent quality at a saving of your time and money.

For more information about *Synthane* grades, properties and fabrication facilities, send in the coupon.

SYNTHANE CORPORATION, 7 River Road, Oaks, Pa.

Please rush me more information about *Synthane* laminated plastics.

Name_____

Title_____

Company_____

Address_____

City_____ Zone_____ State_____

SYNTHANE
LAMINATED PLASTICS

SYNTHANE CORPORATION • OAKS, PENNSYLVANIA

For More Information Circle No. 126 on Inquiry Card—Page 17

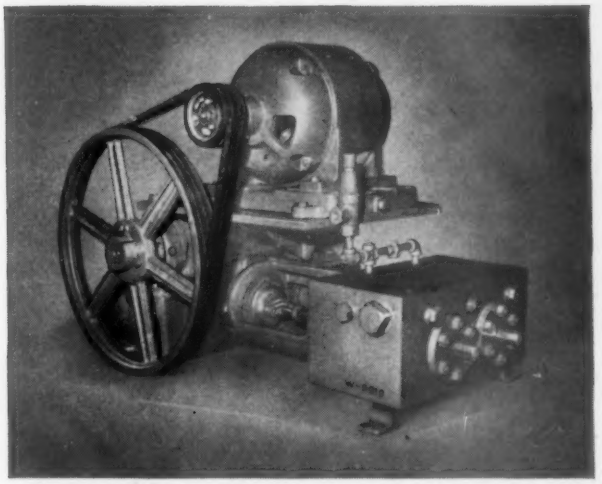
For More Information Circle No. 127 on Inquiry Card—Page 17→

Why specify one sheave instead of another?

TAKE A CLOSE LOOK at this cutaway view of the Worthington QD — the *original* two-piece sheave. See how unique two-piece construction makes it easy to get on, easy to get off. But its heavy-duty split-tapered-cone hub grips shaft tightly, holds fast under the heaviest shock loads.

Some folks seem to think there's no difference between sheaves. No matter who makes them or sells them, a sheave's a sheave and a V-belt's a V-belt. Period.

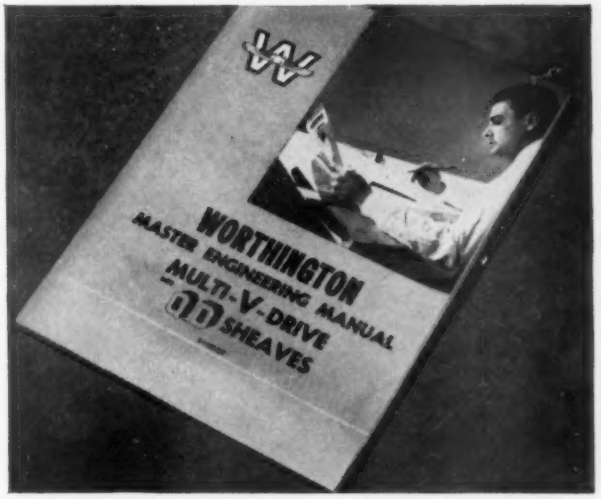
Not our users, though. They know *our* sheave (the Worthington QD) *is* different. More to the point, they know it's *better* than other sheaves. And easier to get, too. There are Worthington service outlets practically everywhere. Never any delays in stock shipment or service!



SCIENTIFIC DESIGN of QD sheaves not only provides more efficient transmission of power but actually adds to the looks of your product. What's more, I-beam construction of the QD drive sheaves provides greater strength with less weight.

WAREHOUSES LOCATED AT: Kearny, N.J. • Oil City, Pa. • Seattle San Francisco • Los Angeles • Denver • Tulsa • Ft. Worth • Houston New Orleans • Chicago • Cleveland • Atlanta, Ga.

PROMPT SHIPPING SERVICE. Thirteen factory warehouses with stocks covering over 100,000 V-belt drive stock combinations, from ½ to 600 horsepower, support over 250 stocking distributor outlets. These shipping centers can fill your requirements *fast*.



GOOD NEWS for purchasing men is free new 100-page "Master Engineering Manual" which makes sheave and V-belt selection as easy as falling off a drive shaft. Write for it today to Worthington Corporation, Mechanical Power Transmission Division, Sect. MV.5.6, Oil City, Pa. MV.5.6

WORTHINGTON

BUY THESE WORTHINGTON STANDARD PRODUCTS FROM YOUR LOCAL DISTRIBUTOR

Compressors • Pumps • Multi-V-Drives • Variable Speed Drives

Meet some important members of the **HARPER** family

If you use bolts and cap screws you will be interested in the Harper family. It is a big family! 275 separate sizes out of stock in stainless steel, 183 in Monel, 167 in brass, 77 in aluminum, 673 in the bronzes. Many additional sizes on special order.

This family of products is typical of many sizes and styles of Harper fastenings carried in stock in bolts, nuts, screws, washers and rivets—all, of course, of corrosion-resistant metals—brass, bronze, Monel, aluminum, and stainless steel.

Write the Harper Branch or Distributor near you for prices and delivery. Or, if you have a particular fastening problem, remember Harper engineers and metallurgists are available to help you.

THE H. M. HARPER COMPANY
8222 Lehigh Ave., Morton Grove, Illinois

Specialists in all corrosion-resistant fastenings

Bolts • Nuts • Screws • Rivets • Washers
of Brass • Bronze • Monel • Aluminum • Stainless

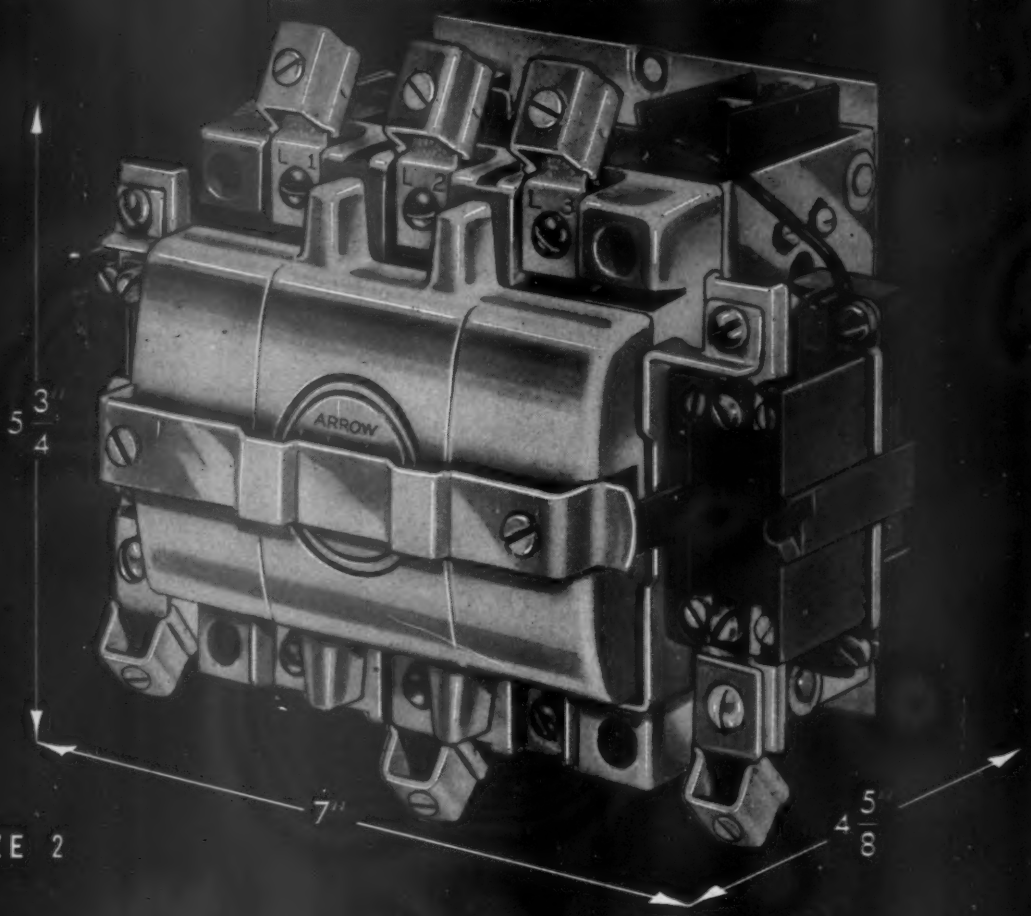
OVER 7000 ITEMS IN STOCK...HARPER DISTRIBUTORS EVERYWHERE

HARPER
EVERLASTING FASTENINGS

For More Information Circle No. 128 on Inquiry Card—Page 17

ARROW AH HART

TYPE "RA" MAGNETIC STARTERS



SMALLER IN SIZE, WEIGHT and OVER-ALL COST

Much smaller and lighter than other starters of comparable rating. Straight-thru front wiring saves in installation time. Easy contact inspection or replacement saves maintenance costs. Type "RA" Magnetic Starters are available in sizes 0 thru 5 in standard and special purpose housings.

Mail coupon for free folder "The Big Story" which gives more detailed information.

ARROW-HART
INDUSTRIAL CONTROL DIVISION
103 HAWTHORN ST., HARTFORD 6, CONN.

OFFICES, SALES ENGINEERS AND WAREHOUSES IN:

ATLANTA	DALLAS	MINNEAPOLIS	SAN FRANCISCO
BOSTON	DETROIT	NEW YORK	• • •
CHICAGO	HOUSTON	PHILADELPHIA	HAVANA, CUBA
CINCINNATI	LOS ANGELES	PITTSBURGH	TORONTO, CANADA
CLEVELAND	MILWAUKEE	ST. LOUIS	LONDON, ENGLAND

Quality

MOTOR CONTROLS • WIRING DEVICES
ENCLOSED SWITCHES • APPLIANCE SWITCHES

INDUSTRIAL CONTROL DIVISION P
THE ARROW-HART & HEGEMAN ELECTRIC CO.
103 HAWTHORN STREET, HARTFORD 6, CONN.
Please send my copy of "The Big Story" which tells why A-H "RA" Magnetic Starters are the logical choice for my plant.

NAME_____
POSITION_____
COMPANY_____
CO. ADDRESS_____
CITY_____ ZONE____ STATE_____

For More Information Circle No. 129 on Inquiry Card—Page 17

WHERE R-B Punches cut your costs

IN DIE DESIGNING

. . . you save "board time" by working with the standardized R-B concept of punches, die buttons, punch retainers and die button retainers. R-B standardized equipment reduces drafting time to cut your costs.

IN DIE CONSTRUCTION

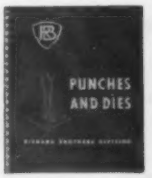
. . . you save "building time" because R-B punches, die buttons, punch retainers and die button retainers are furnished completely finished. R-B saves skilled die-maker's time to cut your costs.

IN DIE OPERATION

. . . you save "press time" because R-B punches and die buttons are instantly removed and replacements quickly inserted. Inherent accurate alignment and positive locking keep press down-time at a minimum to cut your costs.

Use R-B Engineering Service for Your Tough Piercing Problems.

RICHARD BROTHERS PUNCH DIVISION
ALLIED PRODUCTS CORPORATION
DEPT. 75 • 12603 BURT RD. • DETROIT 23, MICHIGAN



Please send me additional information.

NAME_____ TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

Also Produced in
OTHER ALLIED PLANTS

SPECIAL COLD FORGED PARTS

STANDARD CAP SCREWS

PRECISION GROUND PARTS

SHEET METAL DIES MADE OF FERROUS ALLOYS, ZINC ALLOYS OR PLASTICS

For More Information Circle No. 130 on Inquiry Card—Page 17

"You mean live fish?"

Exactly: Live fish. In water.
In a corrugated box.

A customer of ours uses this unique bag-in-a-box-in-a-box to ship live tropical fish all over the world. Says it's the most damage-proof and economical package he's used in 32 years as an aquariist.

Just goes to show you:
Nothing's impossible for H&D Package Engineers. Why not let 'em tackle your packaging problem?

HINDE & DAUCH

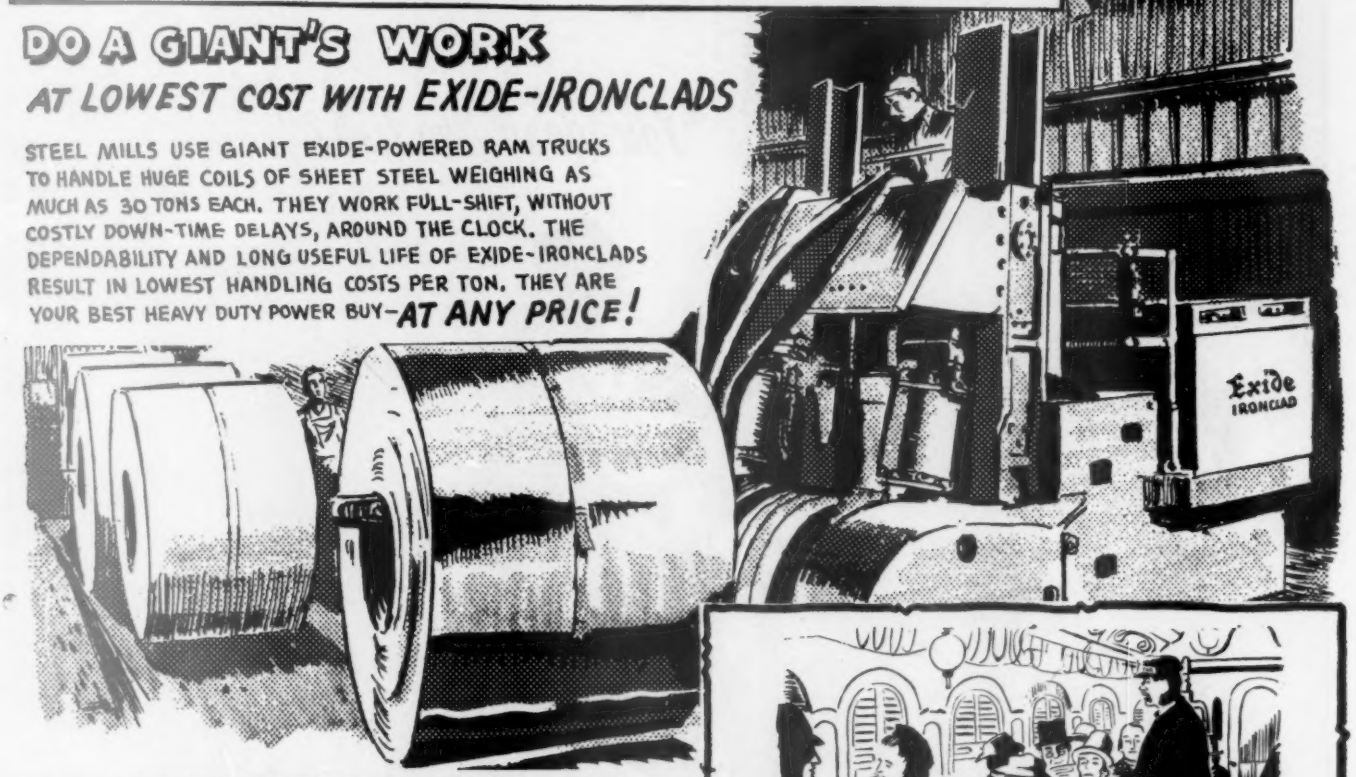
AUTHORITY ON PACKAGING • SANDUSKY, OHIO
13 FACTORIES • 40 SALES OFFICES

For More Information Circle No. 131 on Inquiry Card—Page 17

FACTS ABOUT Exide®
INDUSTRIAL BATTERIES

DO A GIANT'S WORK
AT LOWEST COST WITH EXIDE-IRONCLADS

STEEL MILLS USE GIANT EXIDE-POWERED RAM TRUCKS TO HANDLE HUGE COILS OF SHEET STEEL WEIGHING AS MUCH AS 30 TONS EACH. THEY WORK FULL-SHIFT, WITHOUT COSTLY DOWN-TIME DELAYS, AROUND THE CLOCK. THE DEPENDABILITY AND LONG USEFUL LIFE OF EXIDE-IRONCLADS RESULT IN LOWEST HANDLING COSTS PER TON. THEY ARE YOUR BEST HEAVY DUTY POWER BUY—*AT ANY PRICE!*



THE BATTERY THAT OUTLASTS THEM ALL IN TAXIS AND POLICE CARS
THE EXIDE ULTRA START

CAN END YOUR FLEET BATTERY PROBLEMS!

THE ULTRA START IS THE MIRACLE BATTERY MADE BY EXIDE TO GIVE LONGEST LIFE, INCREASED CAPACITY AND STARTING POWER. IN ACTUAL POLICE CAR OPERATION, ULTRA STARTS HAVE GONE AS FAR AS 170,875 MILES (THE EQUIVALENT OF 17 YEARS' AVERAGE DRIVING) WITHOUT RECHARGING! A GOOD REASON FOR EQUIPPING YOUR FLEET CARS WITH 6 AND 12 VOLT ULTRA STARTS!

"ANY ICE TODAY, LADY?"

TRAVEL COMFORT IN 1876 WAS AIDED BY THE TRAIN BOY WITH HIS CAN OF ICE WATER. "AIR CONDITIONING" CAME THROUGH THE WINDOW. LIGHTING WAS INADEQUATE AND DANGEROUS. IT'S ALL DIFFERENT NOW, WITH HELP FROM EXIDES – MR. AVERAGE PASSENGER RIDES IN WELL-LIGHTED, COMFORTABLY AIR CONDITIONED CARS.

FLASH!

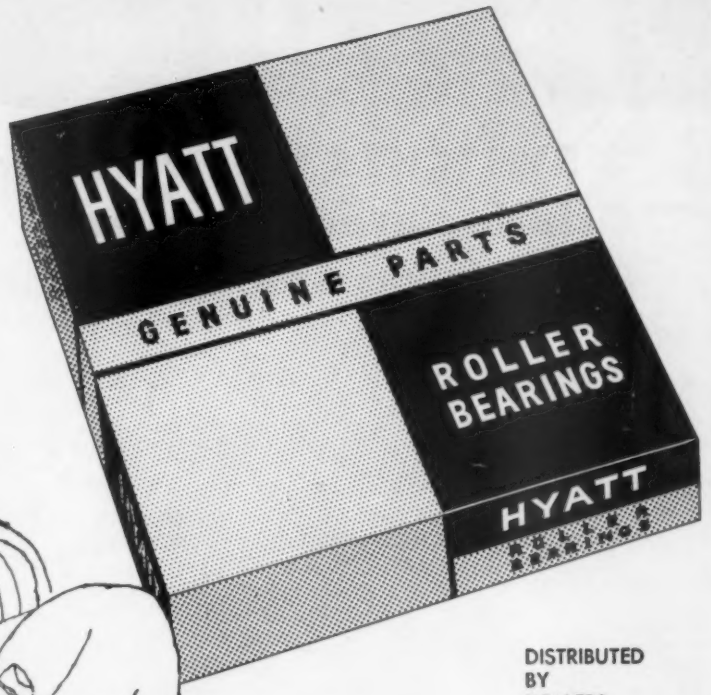
EXIDE ANNOUNCES THE NEW **EH IRONCLAD**–A CAR LIGHTING AND AIR CONDITIONING BATTERY THAT SETS A NEW HIGHER STANDARD FOR THE RAILROAD INDUSTRY. THE **EH** GIVES FULL RATED POWER INITIALLY – FULL RATED POWER FOR A LONGER WORKING LIFE! WRITE FOR SPECIFICATIONS!

ALL EXIDE BATTERIES ARE BUILT TO GIVE YOU LONGER LIFE AND GREATER POWER. LET AN EXIDE SALES ENGINEER SHOW YOU HOW EXIDES CAN IMPROVE YOUR OPERATIONS, CUT COSTS, PROTECT YOUR BUSINESS.

Exide INDUSTRIAL DIVISION, The Electric Storage Battery Company Philadelphia 2, Pa.

For More Information Circle No. 132 on Inquiry Card—Page 17

NO WONDER HYATTS ARE SO GOOD . . .



there's no substitute for . . .

DISTRIBUTED BY DEALERS EVERYWHERE

A GENERAL MOTORS PRODUCT

A UNITED MOTORS LINE

EACH ONE GETS OVER 50 GOIN'-OVERS!

says HY WHEELER, the sage of the socket wrench

And that's just *before* assembly, brother! The average roller gets off "easy" with only 17 inspections—the average race has to pass 41. Then at *final* inspection, every finished Hyatt gets a goin'-over that makes the third degree look like a Sunday school picnic!

That final inspection and packaging at Hyatt is as careful as for a thousand-dollar watch. Why, the girls even have their hands coated with special stuff to keep any sweat from touchin' those precious Hyatts! That's why I keep remindin' you: There's other bearings that *look* as good, but you *hold out for Hyatts in the blue and yellow box.*

HYATT ROLLER BEARINGS

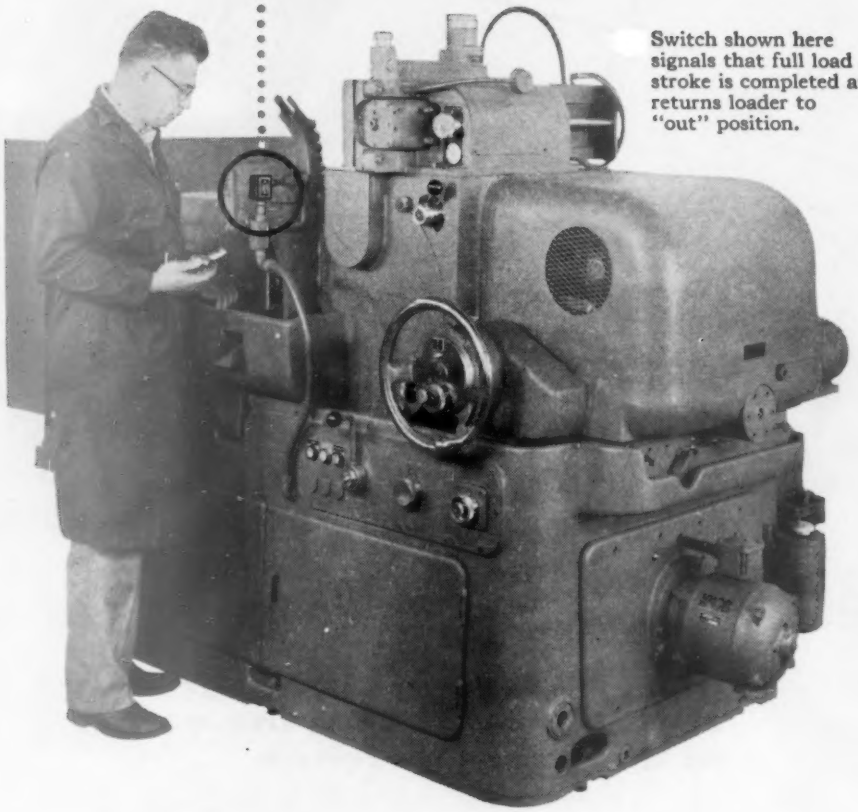
STRAIGHT BARREL TAPER

HYATT BEARINGS DIVISION • GENERAL MOTORS CORPORATION • HARRISON, NEW JERSEY

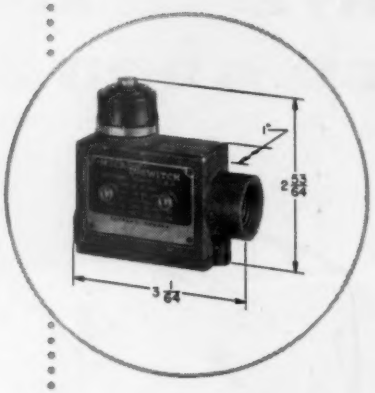
For More Information Circle No. 133 on Inquiry Card—Page 17

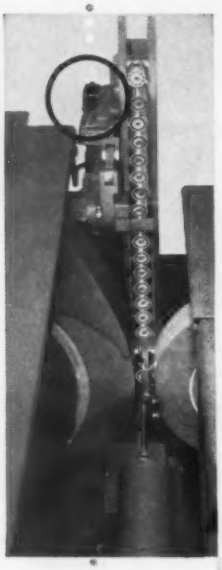
MICRO SWITCH Precision Switches
A PRINCIPLE OF GOOD DESIGN

3 SWITCHES help this Landis Grinder precision grind 380 piston assemblies an hour

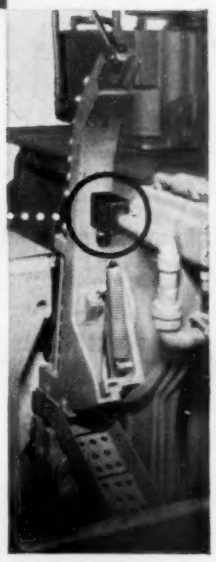


Switch shown here signals that full load stroke is completed and returns loader to "out" position.





This switch signals that the loader has withdrawn and starts grinding wheel head into position.



Switch signals that finished part has been ejected and starts loader on "load" stroke.

MICRO SWITCH products were selected by engineers of the Landis Tool Company to perform important automatic functions of this No. 12 Centerless Grinding Machine.

The switches signal and control the various steps of the loading and unloading cycle. Landis engineers selected the dependable MICRO SWITCH precision units for this rugged day-in, day-out service because:

1. MICRO SWITCH provides widest selection of oil-tight switches of this type.
2. MICRO SWITCH national distribution makes easy switch replacement possible.
3. MICRO SWITCH field engineering service is quickly available.

For almost two decades, manufacturers of high quality machinery, electronic devices and instruments have found MICRO SWITCH engineering assistance the quick, practical and economical answer to switching problems. "MICRO SWITCH, Freeport, Illinois" is the sterling mark of quality on precision switches. Call your nearest MICRO SWITCH branch for consultation and advice without obligation.

A complete line of snap-action and mercury switches

MICRO SWITCH provides a complete line of extremely reliable, small-size, high-capacity, snap-action precision switches and mercury switches. Available in a wide variety of sizes, shapes, weights, actuators and electrical characteristics. For all types of electrical controls.

MICRO SWITCH
A DIVISION OF MINNEAPOLIS-HONEYWELL REGULATOR COMPANY
In Canada, Leaside, Toronto 17, Ontario • FREEPORT, ILLINOIS

H HONEYWELL

For More Information Circle No. 134 on Inquiry Card—Page 17

For More Information Circle No. 135 on Inquiry Card—Page 17 →

Thermoid Conveyor Belting cuts your handling costs

There's a Thermoid Conveyor Belt designed to lower your costs on every type of materials handling job. Each is best suited for the particular type of service recommended. Here are 3 selected from the complete Thermoid line: **NEOPRENE** —built especially for conditions where heat and oil are encountered; **THERMOGLAS** — designed for use where belt is exposed to temperatures of 275° to 350° F.; **RUFFTOP** —Thousands of irregular gripper points guide smooth surfaced articles up inclines to 35°.

Thermoid's exclusive impregnation process welds carcass and cover into an exceptionally strong, durable belt. Finest quality reinforcement and specially compounded rubber stocks assure long life, less down time, lower handling costs. Your Thermoid Distributor carries a full line of Thermoid Conveyor Belting, Hose and Multi-V Belts to meet your most exacting requirements. He maintains complete stocks and can give you fast service. If you prefer, write direct.

Conveyor & Elevator Belting • Transmission Belting
F.H.P. & Multiple V-Belts • Wrapped & Molded Hose

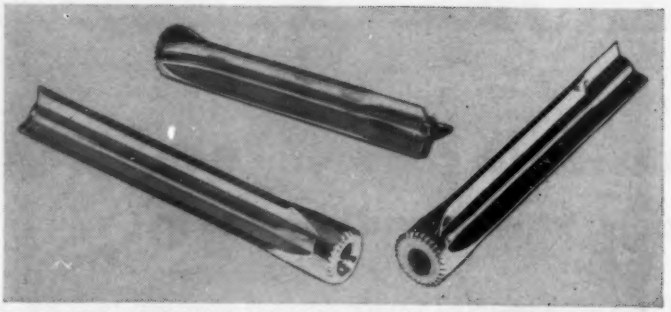
Thermoid

Rubber Sheet Packings • Molded Products
Industrial Brake Linings and Friction Materials

Thermoid Company • Offices & Factories: Trenton, N. J., Nephi, Utah

WIDE ENDURO BELT ...keeps scratches off bandages

CORROSION RESISTANCE IN TUBULAR FORM. Republic's Steel and Tubes Division turns out miles of ENDURO Stainless Steel Tubing for the process industries and for mechanical applications. Republic ELECTRUNITE Stainless Steel Tubing and Pipe offer the identical high mechanical and corrosion-resisting properties demonstrated in sheet form by the Reynolon belt. Call Steel and Tubes for application assistance on all your fluid handling and tubing problems.



WHAT'S EVEN MORE CORROSION-RESISTANT? REPUBLIC TITANIUM. Titanium surpasses even stainless steel in resistance to many severe forms of corrosion. Yet, it weighs only 56% as much as alloy steel. Here, Republic Titanium supplies corrosion-resistance and lighter weight to parts designed to knit human bones. Republic Titanium and Titanium alloys now are available for civilian applications. Republic has the experience to help you use them best. Write us.

REPUBLIC STEEL

REPUBLIC STEEL CORPORATION
3126 East 45th Street,
Cleveland 27, Ohio

I'm interested in additional information on:

- ☐ Republic ENDURO® Stainless Steel
- ☐ Stainless Metallurgical Assistance
- ☐ ELECTRUNITE® Stainless Steel Tubing
- ☐ Republic Titanium
- ☐ Republic Steel Drums and Barrels

Name_____ Title_____

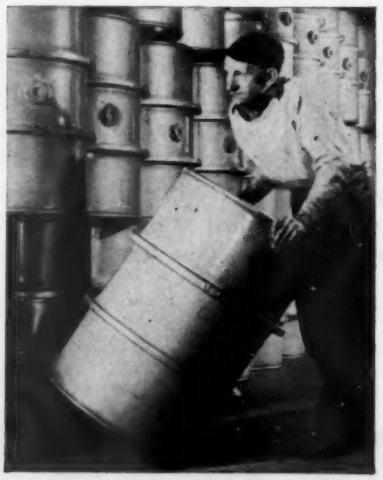
Company_____

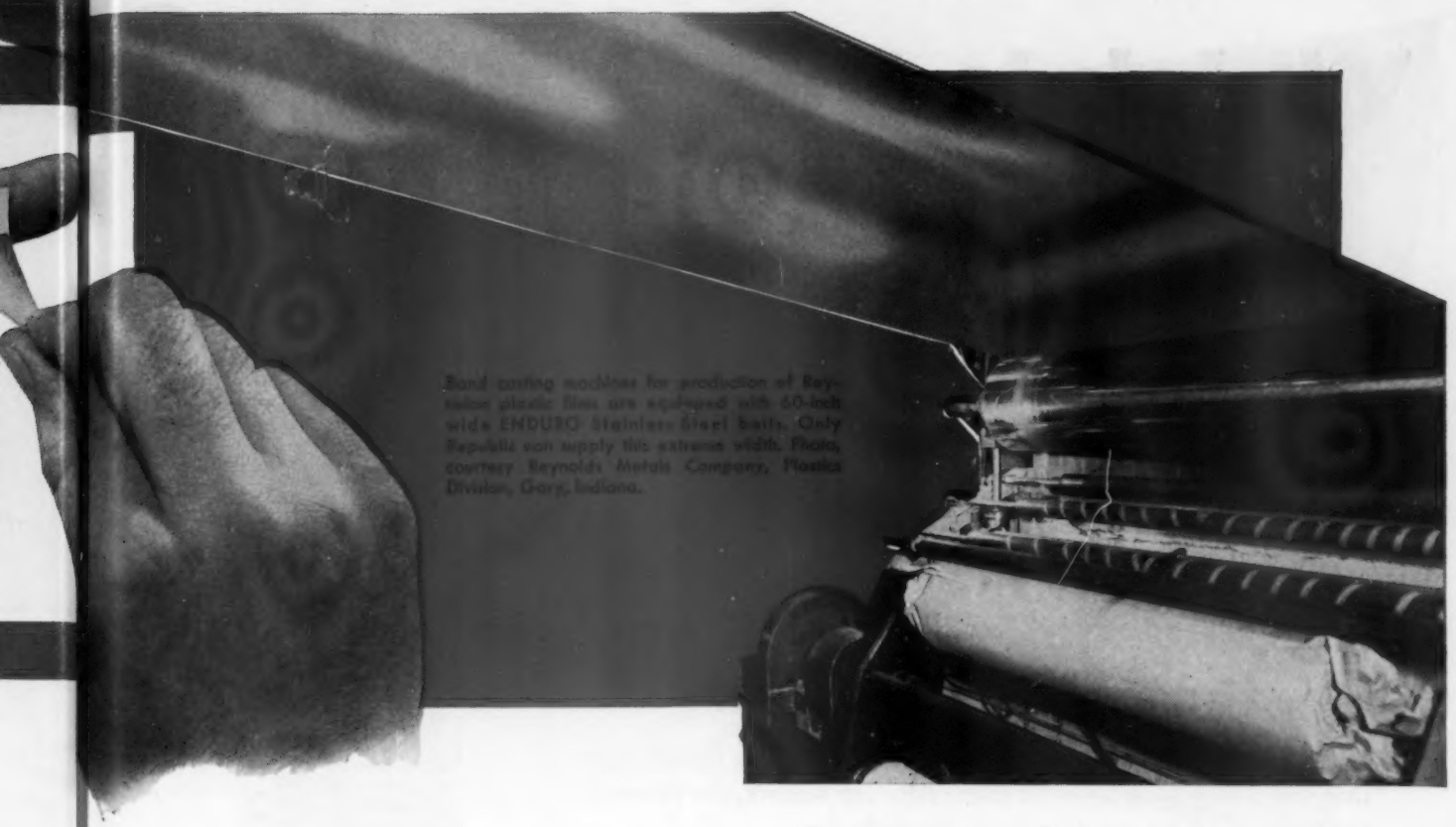
Address_____

City_____ Zone____ State_____

K-8491

NO CONTAMINATION—NO SPOILAGE. Republic Steel offers a full range of barrels, drums and pails in a variety of metals and finishes to protect your chemical, food and other products. Choose from ENDURO Stainless Steel, hot dipped galvanized steel, hot dipped tinned steel, mill galvanized sheet steel, hot rolled open hearth steel, plain or lacquer lined. Choice of gages to meet all handling and shipping requirements. Many styles in sizes up to 55 gallons. Contact Republic.





Band casting machines for production of Reynolon plastic film are equipped with 60-inch wide ENDURO Stainless Steel belts. Only Republic can supply this extreme width. Photo, courtesy Reynolds Metals Company, Plastics Division, Gary, Indiana.

This wide, polished ENDURO Stainless Steel belt carries Reynolon plastic coatings in process. One such type makes the peel-off backing for those handy packaged small bandages you use.

The ENDURO surface provides a high luster finish! Since the slightest scratch would be "mirrored" or duplicated in the finished product, the quality of the stainless steel surface determines the quality of the plastic coating. Here, ENDURO keeps scratches off bandages!

Note that the belt is supported only by top rollers. That allows both sides to carry the plastic material . . . speeds production. It also means that the belt must have great tensile strength. ENDURO supplies that strength. In this case, tension on the belt runs as high as 90 tons.

What's more, this belt must be heat-resistant. In process, material passes through 600° ovens. And, many of the plastics processed are in hydrous or acidic solutions. So, the belt must resist rust and corrosion. ENDURO does just that.

Four of these sixty-inch wide belts help produce Reynolon plastic film. Even at this extreme width, the belts must stay flat. "Crowned" metal could snap like an oil can and damage the plastic.

Republic metallurgists worked closely with Reynolds Metals Company, Plastics Division, to develop this unusual equipment. If you have process or product problems involving heat, corrosion, surface finish or strength, ENDURO Stainless Steel quite likely is your answer. Republic metallurgists will help you apply it most profitably. Write Republic.

REPUBLIC STEEL

World's Widest Range of Standard Steels and Steel Products

Which is the CleCap?

...the unusually LARGE one that's hard to find

One of the advantages CleCap customers enjoy is the knowledge that when they want some of those BIG cap screws, the chances are 9 out of 10 we can ship them the same day.

CleCap makes 'em regularly from ¼" to 2½" diameters, any length you want—ferrous and non-ferrous—and we stock a lot of unusual sizes, nearly 10,000 different items last count.

That's another reason for dealing with *The* cap screw specialists of the country. You also get unbeatable top-quality fasteners . . . PLUS a CleCap crew that has a long-made rep for "busting a leg" to get you what you want exactly when you want it.

What happens to your profits when late deliveries hold up production lines? Put your cap screw needs up to CleCap . . . and relax!

The Cleveland Cap Screw Co.
2922 EAST 79TH STREET • CLEVELAND 4, OHIO
VU Ican 3-3700 TWX CV42

WAREHOUSES:
Chicago • Philadelphia • New York
Providence • Los Angeles

CLEVELAND *Top Quality* FASTENERS

Ferrous and Non-Ferrous: Bright, High Carbon and Alloy Steel Heat Treated, Brass, Silicon Bronze, Stainless Steel

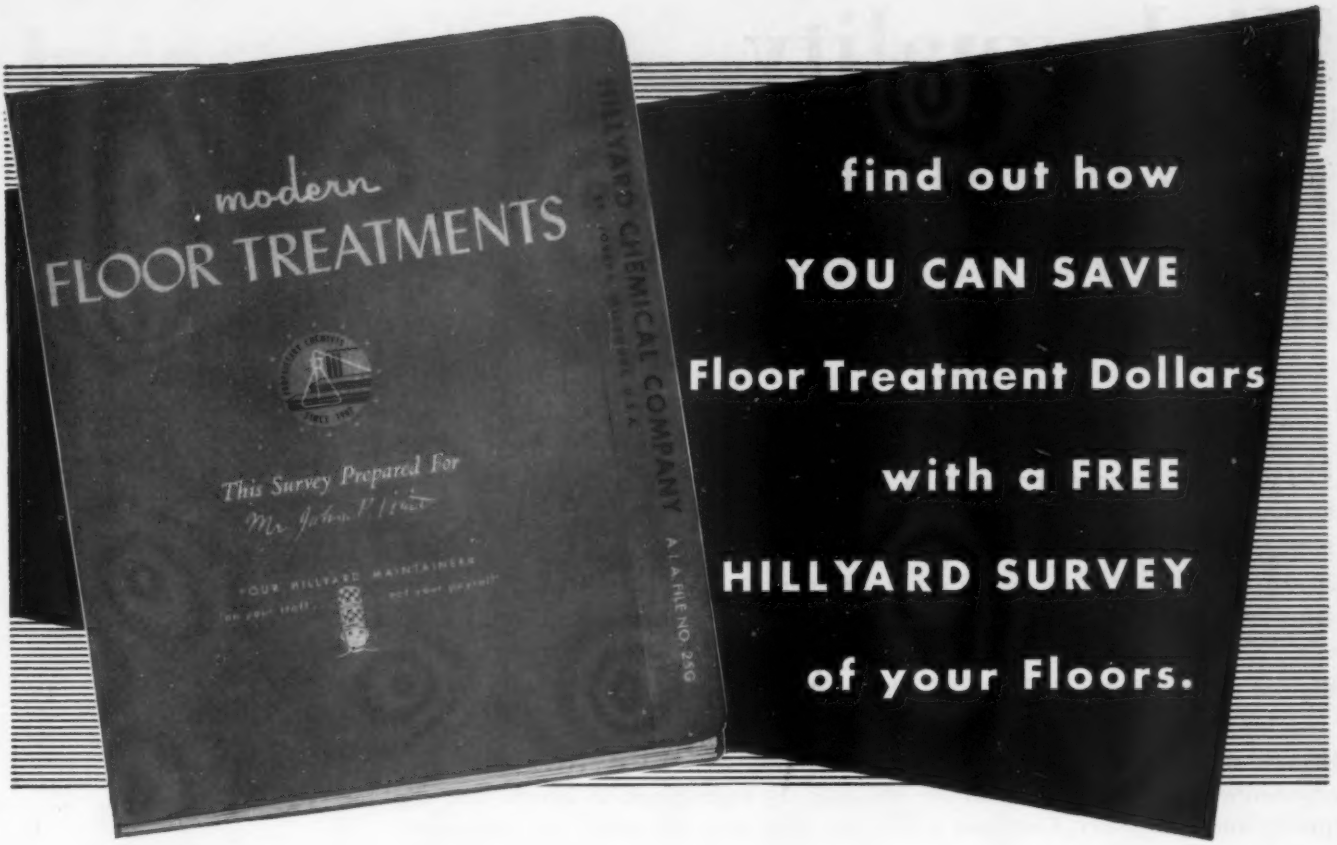
Hex Head Cap Screws: ¼" to 2½" dia.
Socket Head Cap and Set Screws—Plain and Knurled: ¼" to 1½" dia. Also Flat and Button Head Styles.
Flat Head Cap Screws: ¼" to 1" dia.
Fillister Head: ¼" to 1" dia.
Set Screws—Square Head: ¼" to 1½" dia.
Milled Studs: ¼" to 1¼" dia.
Place Bolts: ¼" to 1¼" dia.
Structural Bolts to ASTM Specification A325
Tractor Bolts
Special Hot and Cold Headed Parts

Facilities to make larger diameters than listed.

Ask your jobber for CleCap!

Originators of the Kaufman DOUBLE EXTRUSION Process

For More Information Circle No. 137 on Inquiry Card—Page 17



A HILLYARD FLOOR TREATMENT PLAN CAN SAVE MATERIAL AND LABOR COST

From Survey to Service you'll find Hillyard specialized floor treatments for industry provide complete protection, beauty and economy — safe for your floors — safe for those who walk on them — have to last longer because they're made to answer particular floor treatment problems. They're famous for quality and safety. The Hillyard "Maintaineer" near you is trained to efficiently and quickly make a *FREE* survey of your floors and present a plan especially prepared for you. He will show you how your floors can be more beautiful — yet prove important savings in labor and materials.

All Specifications prepared in accordance with American Institute of Architects requirements.

***Write or Call Collect for the Name of your nearest* HILLYARD MAINTAINEER ®**

NO OBLIGATION . . .

on your staff, not your payroll

FLOOR HILLYARD TREATMENTS

ST. JOSEPH, MISSOURI

Branches and Warehouse Stocks in Principal Cities

SEND COUPON TODAY FOR FREE SURVEY

HILLYARD CHEMICAL CO.
St. Joseph, Missouri

Please have your Maintaineer call and make a free survey of my floors.

Name..... Title.....

Institution.....

Address.....

City..... State.....

For More Information Circle No. 138 on Inquiry Card—Page 17

High quality nickel alloy castings and forgings

...DELIVERED PROMPTLY

Do you need castings or forgings of Monel®, or 70% copper-30% nickel . . . or forgings of Inconel® or "K"® Monel—in a hurry?

Philadelphia Bronze & Brass can give you prompt service on parts weighing up to 2000 pounds, made of these and other high nickel alloys. Our extensive facilities can produce to your specifications . . . efficiently and economically . . . and deliver in strict adherence to your schedules.

Highest quality materials are used. Only virgin metals are alloyed for castings. Certified materials supplied by International Nickel Company are used for forgings.

Highest standards of production, developed during our 30 years of specialized experience in non-ferrous work, are consistently maintained to assure you top quality and uniformity. Constant quality control, using advanced test equipment, watches over each manufacturing step.

Single responsibility for pattern making, alloying, casting, forging and rough or finish machining assures you of getting *what* you want . . . *when* you want it.

Our new catalog gives full information on PB&B facilities and alloys. For a copy, and for service on your non-ferrous casting and forging requirements, write to Philadelphia Bronze & Brass or to any of the numerous field offices of P. R. Mallory & Co. Inc.

® *Registered Trade Mark—International Nickel Company*

Other Alloys Cast and Forged by Philadelphia Bronze & Brass

In addition to the nickel alloys described here, PB&B also supplies castings and forgings of the following metals:

High conductivity copper
Mallory alloys for welding
Aluminum bronzes
Silicon and manganese bronzes
Titanium alloys

PHILADELPHIA BRONZE & BRASS CORP.
22nd and Master Streets, Philadelphia 21, Pa.

—a subsidiary of

P. R. MALLORY & CO. INC.
MALLORY

For More Information Circle No. 139 on Inquiry Card—Page 17

in just a few days...you can get a standard Howard Fractional H.P. Motor to test

#11A—1/45 to 1/30 H.P.

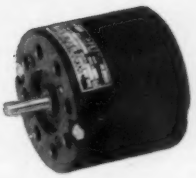
#1109—1/16 to 1/8 H.P.

#100—1/50 to 1/13 H.P.

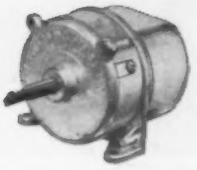
#200—1/200 to 1/75 H.P.

#512—1/20 to 1/10 H.P.

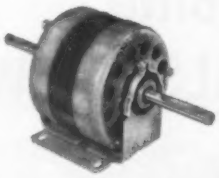
#700—1/8 to 1/2 H.P.



#2800—1/30 to 1/70 H.P.

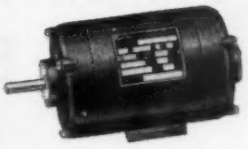


#3000 GEAR MOTOR—
OUTPUT 120 IN. LB.



#5000—1/15 to 1/8 H.P.

#2500—1/300 to 1/1400 H.P.



#2900—1/100 to 1/15 H.P.

Universal and D.C. Motors
1/1000 to 1/2 H.P.

Shaded Pole Motors
1/2000 to 1/8 H.P.

Induction Motors
1/1400 to 1/4 H.P.

If you are searching for the right motor to fit your quantity application, check today with the people at Howard. 85,000 applications over the past 25 years means broad experience and a wide range of motor types and specifications—in fact, the largest line of fractional H. P. motors in the field. Just a representative few are shown here so if you don't see what you need, write today and tell us your requirements. We'll answer your inquiry promptly. Many standard motors are immediately available for your preliminary tests. Write, wire or phone; we'll handle your inquiry or sample order promptly.

HOWARD

Make today your Pay Day buy United States Defense Bonds

DEPT. P-7 • HOWARD INDUSTRIES, INC. • RACINE, WIS.

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DIVISIONS: EMC ELECTRIC MOTOR CORPORATION · CYCLOHM MOTOR CORPORATION · RACINE ELECTRIC PRODUCTS

For More Information Circle No. 140 on Inquiry Card—Page 17

Using the Sheffield-Cavitron Ultrasonic Machine Tool to dice germanium in the mass production of transistors. The tool itself consists of 271 pieces of Superior's 18-gage Type 304 needle tubing, cut to 7/8" lengths and silver brazed into a single tool, permitting tolerances as fine as .0005".

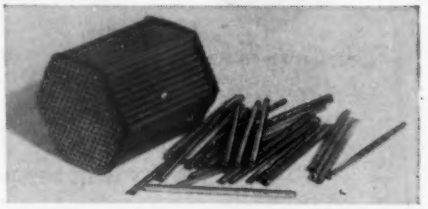
NEW ULTRASONIC MACHINE TOOL USES TUBING TO CUT HARDEST, MOST BRITTLE MATERIALS KNOWN

a new application for Superior Tubing

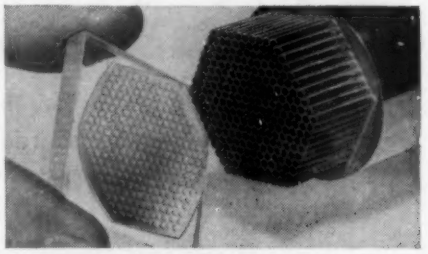
Ultrasonic vibrations do the cutting with this new machine tool, invented and developed by the Cavitron Equipment Corporation, Long Island City, N.Y. In the Cavitron process, a tool is used which has the precise shape of the cavity desired. Finely divided abrasive particles suspended in water are flowed continuously across the work. No movement or vibration is visible when the machine is switched on, although the tool tip vibrates 20,000 times a second through a stroke of .0035". The vibrating tip activates the suspended particles, and microscopic chips are gently excavated without heat, noise or vibration. The tool sinks swiftly into the work under slight pressure, forming a cut or cavity of exactly the same shape as the tip.

Tools made of Superior tubing save considerable cutting time on relatively large areas. Furthermore, the slender walls (.005" thick) minimize waste of valuable raw material. Cavitron engineers first used carbon tubing for this purpose, but in consultation with Superior engineers switched to AISI Type 304. This material has twice the life of carbon tubing, with much greater resistance to wear. Most important, it resists warping at the silver brazing temperatures needed to join the tubes together.

Your files should contain Superior Bulletin No. 40. It lists over 55 types of available material, including the stainless steels, with valuable selection and application data. Write for your free copy today. SUPERIOR TUBE COMPANY, 2034 Germantown Ave., Norristown, Pa. *On the West Coast:* Pacific Tube Co., 5710 Smithway St., Los Angeles 22, California.



Superior tubes are cut into 2" lengths and silver brazed into a 6-sided tool, which is then cut in half and two complete honeycomblike tools formed—each 7/8" deep. Similar tools are used to cut precision jewel bearings.



Closeup of tool and work shown in top picture. The Cavitron makes it possible to cut and drill intricate shapes in materials which, because of their frangibility or sensitivity to sudden temperature changes, would be impossible to work on a production basis.

All analyses available in .010" to 5/8" OD; certain analyses in light walls up to 2 1/2" OD

Superior Tube
The big name in small tubing

Straight facts about centrifugal castings!

Get this new booklet, "One Source," that tells the story of centrifugal casting manufacture! Read how creative engineering and advanced metallurgy at Campbell, Wyant and Cannon assures a more uniform, denser structure for electric furnace alloys resulting in longer-wearing, easier-to-machine castings. In addition to information on centrifugal castings, it contains interesting data on all of the subjects listed below. Send for your free copy now!

Whatever Your Requirements

GO TO ONE SOURCE

CWC

CAMPBELL, WYANT AND CANNON

FOUNDRY COMPANY

Muskegon, Michigan

GRAY IRON, ALLOY IRON AND STEEL CASTINGS

- Intricate Castings
- Castings with Special Properties
- General Purpose Castings
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- Steel Castings
- Centrifugal Castings
- Castings in Limited Quantities
- Castings in Volume

ANOTHER BIG ORDER OUT ON TIME, THANKS TO RHEEM FIBRE DRUMS!

Time is money! That's why Rheem's distribution system, which covers more major markets faster, is so important to you.

One of the features Rheem customers value most is the ready availability of Rheem Fibre Drums that enables them to get the drums they need *when they need them.*

With fibre drum plants on the East Coast, Midwest, and on the West Coast, Rheem offers this timesaving and moneysaving availability in most major markets. In many cases, the drums can be shipped by truck and delivered right to the point of use.

And, thanks to many advances made in the manufacture of Rheem Fibre Drums, they are the ideal containers for many products which formerly required far more costly packaging methods.

For complete information on how Rheem Fibre Drums can save you time and money, write today to the Rheem office nearest you.

Did you know these facts about Rheem Fibre Drums?

1. They can be colorfully decorated, at low cost, through the silk screen process. Or, if you wish, labels may be used.
2. Special interior linings can be applied to give the proper chemical protection to a wide variety of products requiring it.
3. Special laminates can be built into the drum walls to provide an added moisture barrier without adding greatly to the cost.
4. The light weight of sturdy, durable, economical Rheem Fibre Drums reduces shipping costs. Empty drums can be nested to save space.

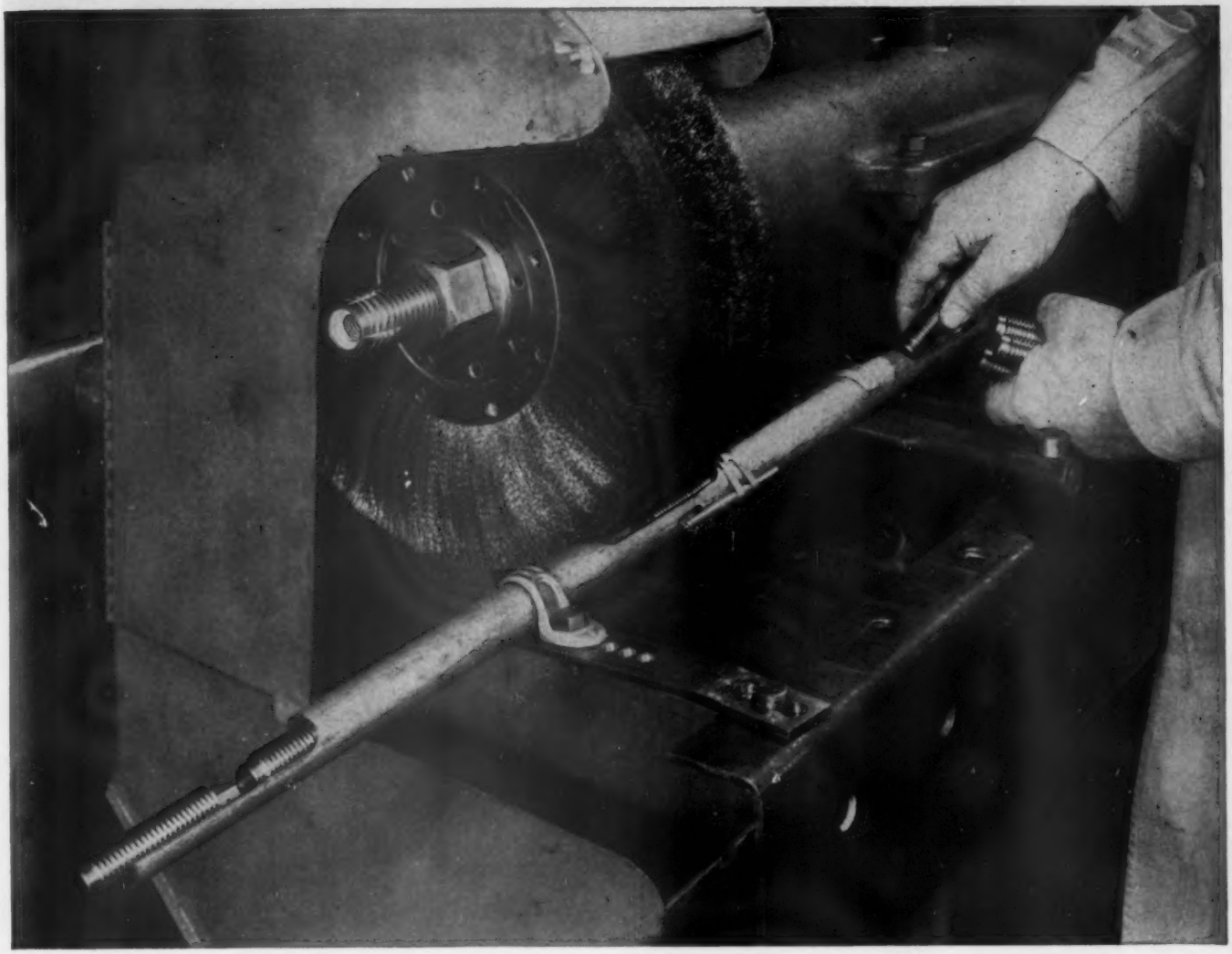
Switch in time, Switch to

Rheem **Fibre Drums**

About ⅓ the weight of steel—and less than ½ the cost!

801 Chesley Ave., Richmond, Calif.; 4361 Firestone Blvd., South Gate, Calif.; 7600 S. Kedzie Ave., Chicago 29, Ill.; U. S. Highway #1, Linden, N. J.; Box 6718, Sparrows Point 19, Md.

For More Information Circle No. 143 on Inquiry Card—Page 17



Here's a faster way to clean small machined parts

A SIMPLE fixture made from pipe—plus Osborn Brushes—cuts thread-cleaning time on these set screws 800 per cent. From 18 seconds to 2 seconds.

All the operator does is feed screws into the fixture. An Osborn Monitor® Brush spins them, cleans them thoroughly. A stationary Osborn Situft® Brush, inserted through the pipe, controls rotation and traverse of the screws across the face of the brush. Pins, pieces of tubing and other such parts can be cleaned and finished in seconds with this same fixture and Osborn Brushes.

In cleaning and finishing small or large parts—metallic or non-metallic, Osborn Power Brushing usually results in faster production, better product quality. Just as Osborn paint and maintenance brushes result in faster, improved plant upkeep. Regardless of the job, specify Osborn Brushes. *The Osborn Manufacturing Company, Dept. U-22, 5401 Hamilton Ave., Cleveland 14, O.*

ONE SOURCE FOR ALL INDUSTRIAL BRUSHES. *Simply specify Osborn—recognized leader for 62 years. Write for copy of Osborn Brush Guide which will help you select the right brush.*

Osborn Brushes

OSBORN

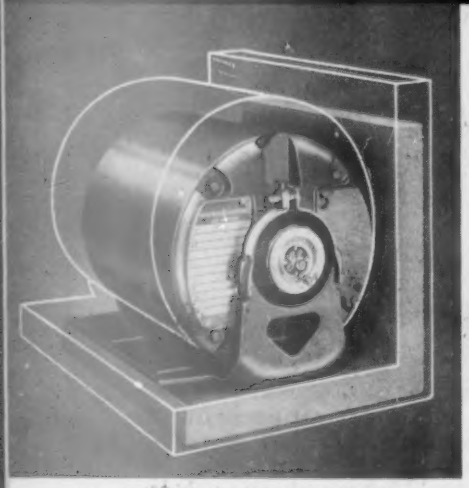
BRUSHING METHODS • POWER, PAINT AND MAINTENANCE BRUSHES
BRUSHING MACHINES • FOUNDRY MOLDING MACHINES

For More Information Circle No. 144 on Inquiry Card—Page 17

For More Information Circle No. 145 on Inquiry Card—Page 17→

Get proved performance, big savings

SAVE ALL 3 WAYS WITH SMALLER, LIGHTER G-E MOTORS



ON MATERIAL—You can design smaller, lighter motor mountings and housings—improve products at same time.

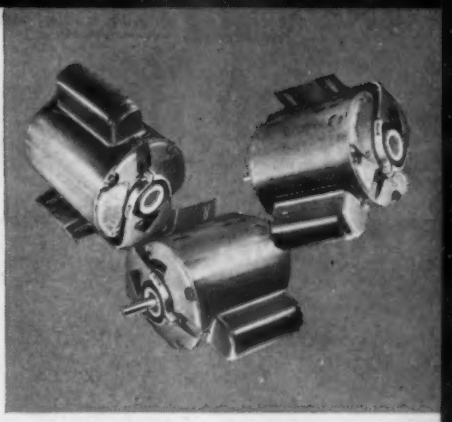
ON ASSEMBLY—Your assembly personnel will produce more efficiently with less fatigue when installing easy-to-handle G-E motors.

ON TRANSPORTATION—Save up to $1 per unit, depending on size and nature of product and distance shipped.

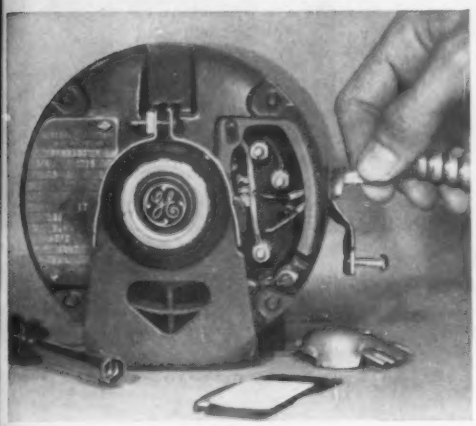
ONLY G.E. OFFERS ALL THESE SUPERIOR FEATURES

SMALLER, LIGHTER DESIGN—as much as 40% smaller and 50% lighter—saves for you on every step from design to shipping.

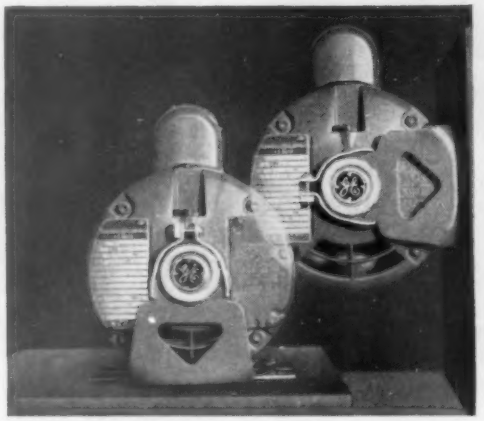
MYLAR* INSULATION (right) has over 35 times the moisture resistance and 8 times the dielectric strength of paper insulation (left).



ALL-ANGLE OPERATION—in any position lubrication is sure and protective; no need for costly specials.



EASY CONNECTION—terminals are close to cover plate; speed-nut welded inside shell permits fast connection from outside.



MOUNTING VERSATILITY—with resilient *or solid* cradle bases, you can rotate *any* motor, or easily remove cradle, to meet design needs.

DOUBLE LUBRICATION LIFE—50% more oil, and efficient oil retention system cut maintenance.

NOW with these advanced G-E motors

3 million in use demonstrate benefits on wide variety of products

Three years ago, General Electric pioneered the smaller, lighter fractional-hp motor. More than 3 million of these advanced G-E motors are now providing outstanding performance on the products of thousands of manufacturers. These manufacturers have realized tremendous savings on material, shipping, and assembly costs.

Today, with these savings encouraging complete conversion to smaller, lighter designs, only the advanced G-E motor provides you all of the superior features listed above. And General Electric offers you high-volume delivery *now* of smaller, lighter fhp motors for every application.

APPLICATION AID—from engineers who have helped thousands of manufacturers improve products with smaller, lighter G-E motors—is available to you. Contact your local G-E Apparatus Sales Office. For more information on advanced G-E fhp motors, write Sect. 702-21, General Electric Co., Schenectady 5, N. Y.

*DuPont trade-mark.

Progress Is Our Most Important Product

GENERAL ELECTRIC

ON NEXT PAGE
4 examples of G-E motor benefits in action

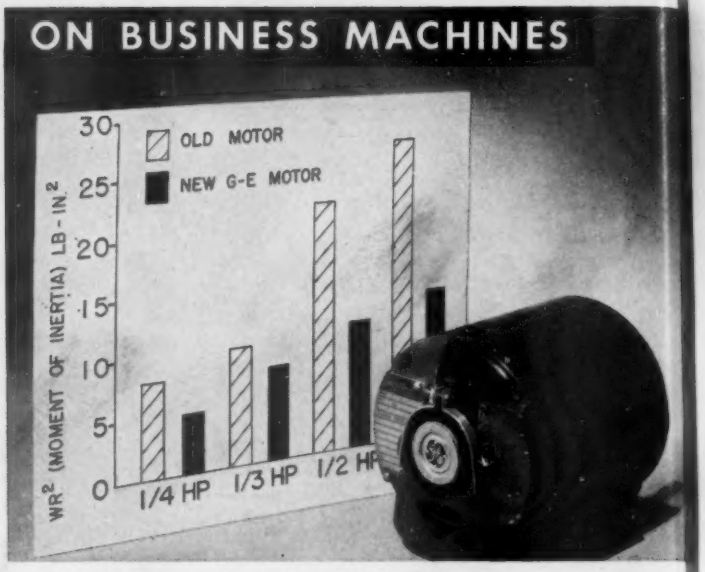
How advanced G-E fhp motors help

IMPROVE YOUR PRODUCT PERFORMANCE

ON MACHINE TOOLS

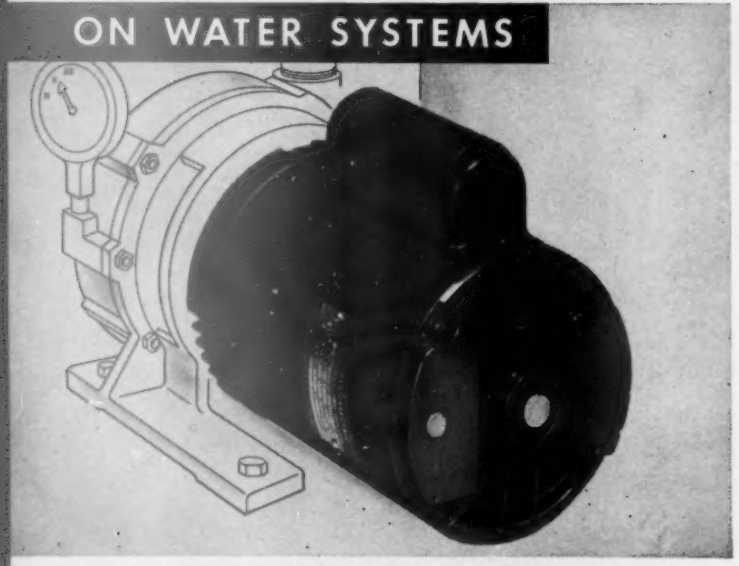
TEN-YEAR FACTORY LUBRICATION of G-E totally enclosed fan-cooled motors means extra-low maintenance. Special ball-bearing construction and new-type grease give long service, support heavy thrust loads. Welded-on base assures rigid mounting; compactness simplifies assembly and design. Rated ¼ to ¾ hp, 3-phase. Write for Bulletin GEC-1306.

ON BUSINESS MACHINES



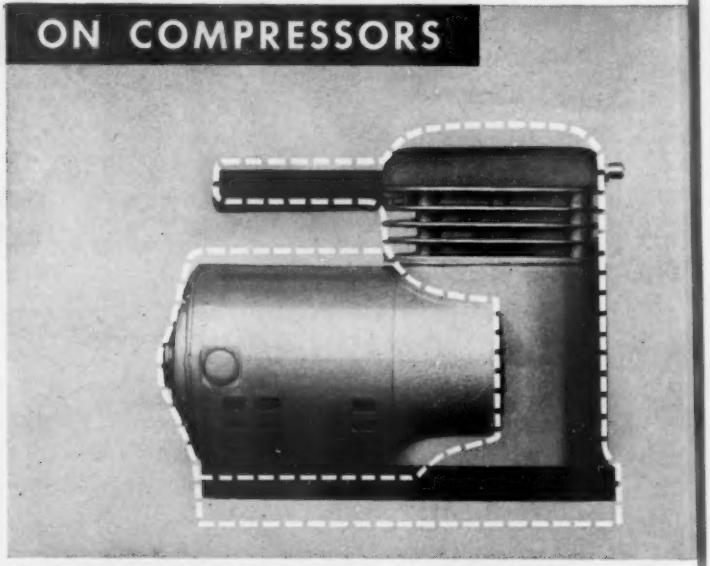
INSTANT MOTOR REACTION due to the low-inertia rotor makes smaller G-E fhp motors ideal for start-stop business-machine use. Absence of high-pitch noise in the magnetic circuit and vibration deadening effect of resilient mounting mean extra-quiet operation. Available in split-phase (Bulletin GEC-859) and capacitor-start (GEC-857) ratings from ⅙ to ¾ hp.

ON WATER SYSTEMS



EXTRA MOISTURE RESISTANCE is provided by modern insulation in this G-E jet-pump motor. Special under-water tests by G-E engineers prove Mylar* slot and between-phase insulation 35 times better than paper. New grease lasts 10 years, minimizes maintenance in hard-to-reach places. Ratings: ¼ to 1½ hp, vertical or horizontal mounting. Bulletin GEA-5902.

ON COMPRESSORS



SMALLER SIZE of G-E fhp motors for compressors enables you to design more compact products. 40% lighter weight cuts your shipping costs. Two frame sizes cover entire line, permit you to standardize tooling, cut pulley stocks. A complete line of general-purpose and special-service ratings from ⅙ to ¾ hp is available. Bulletins GEC-854 and GEC-857.

FOR FULL INFORMATION on these and other G-E fhp motors, contact your nearby G-E Apparatus Sales Office. And write for Bulletins listed to General Electric Co., Sect. 702-21, Schenectady, N. Y.

GENERAL ELECTRIC

for Better, Faster, SURER FASTENINGS...

Specify EATON - RELIANCE

Designed for Industry from Experience . . .

Send for Engineering Bulletin S-49

Send for Engineering Bulletin W-50

Send for Engineering Bulletin S-49

Send for Engineering Bulletin 4/K3

If you are using bolted assemblies in your products or machining shoulders on shafts and in counterbores, it will pay you to look over the Eaton-Reliance descriptive literature offered in this ad. By switching to Eaton-Reliance fastenings or snap rings you may find, as other manufacturers have found, that time and money can be saved without major changes in production methods. Eaton-Reliance Springtites® and Sems are pre-assembled screw and lock washer combinations that eliminate double assembly and the need of separate inventory. Reliance Spring Lock Washers have long been used for keeping bolted assemblies tighter longer. Reliance Snap Rings save time, materials and money when used as shoulders on shafts and in counterbores.

The Engineering Bulletins will show you how the Eaton-Reliance line can help you in your manufacturing procedures.

RELIANCE DIVISION EATON® MANUFACTURING COMPANY

OFFICE and PLANTS: 513 Charles Ave. MASSILLON, OHIO

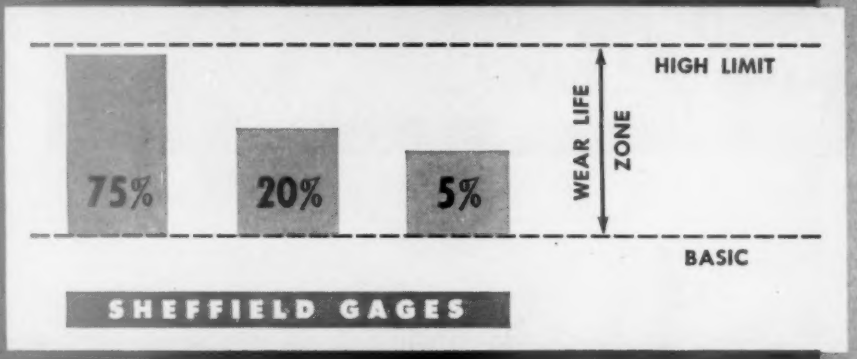
Springtites® & Sems · Snap & Retaining Rings · Special Steels · Spring Lock Washers · Hex-Fas-Ners®

SALES OFFICES: New York • Cleveland • Detroit • Chicago • St. Louis • San Francisco • Montreal

For More Information Circle No. 146 on Inquiry Card—Page 17

WHY THREAD GAGES Wear Longer

Special supersensitive production equipment controlled by high amplification instruments, plus Master Craftsmen make it practicable to hold the finished size of Sheffield thread gages unusually close to the gagemaker's high tolerance limit.



Purchasers of Sheffield thread gages can, on the average, expect to receive 75% of them within the upper third of the gage maker's tolerance zone, 20% about half way and the rest between that point and basic.

SPECIFY SHEFFIELD and get more for your gage dollars.

SPECIFY "Revertible" Thread Plug Gages and save even more.

Gage Division, The Sheffield Corporation
Dayton 1, Ohio, U.S.A.

See us at the
Machine Tool Show—Booth 1305

MASTER CRAFTSMAN SHEFFIELD HEADQUARTERS

SHEFFIELD

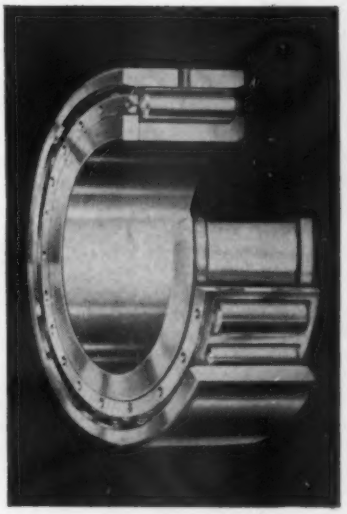
MEASUREMENT FOR MANKIND

IN THE CRUSHED STONE INDUSTRY, TORRINGTON *Bearings are used in many applications including crushers, screens, shovels, cranes, pulverizers, grinding mills and rotary kilns.*

Photograph courtesy of Caterpillar Tractor Co.

TORRINGTON Radial Roller Bearings

are designed with one-piece bronze retainer that keeps rollers correctly aligned and effectively lubricated



Here are other reasons why TORRINGTON RADIAL ROLLER BEARINGS can meet your load and speed requirements. Only the finest quality steels, heat treated according to the most modern methods, are used in manufacture.

Precision tolerances and finishes on both rollers and races guarantee low eccentricity and uniform load distribution.

One-piece, cast-bronze cages help minimize wear, facilitate lubrication, and lengthen bearing life.

Machined pads in each cage-pocket guide the rollers accurately at the pitchline.

Specify TORRINGTON RADIAL ROLLER BEARINGS for your equipment. They are interchangeable in all types and sizes and custom engineered to meet the toughest, heavy duty assignments.

THE TORRINGTON COMPANY
South Bend 21, Ind. • Torrington, Conn.

District Offices and Distributors in Principal Cities of United States and Canada

TORRINGTON RADIAL ROLLER BEARINGS

Spherical Roller • Tapered Roller • Cylindrical Roller • Needle • Ball • Needle Rollers

For More Information Circle No. 148 on Inquiry Card—Page 17

HERE'S AN UNUSUAL ECONOMY IN DESIGN AND PRODUCTION

2 different lamps—with 10 interchangeable parts!

CASE HISTORIES FRO
MT. VERNON FILES

These two handsome Acme* desk lamps have quite different bases—but aside from these, they were designed so that the several other parts required for each are identical and interchangeable. Naturally, this makes for great production economies reflected in sales.

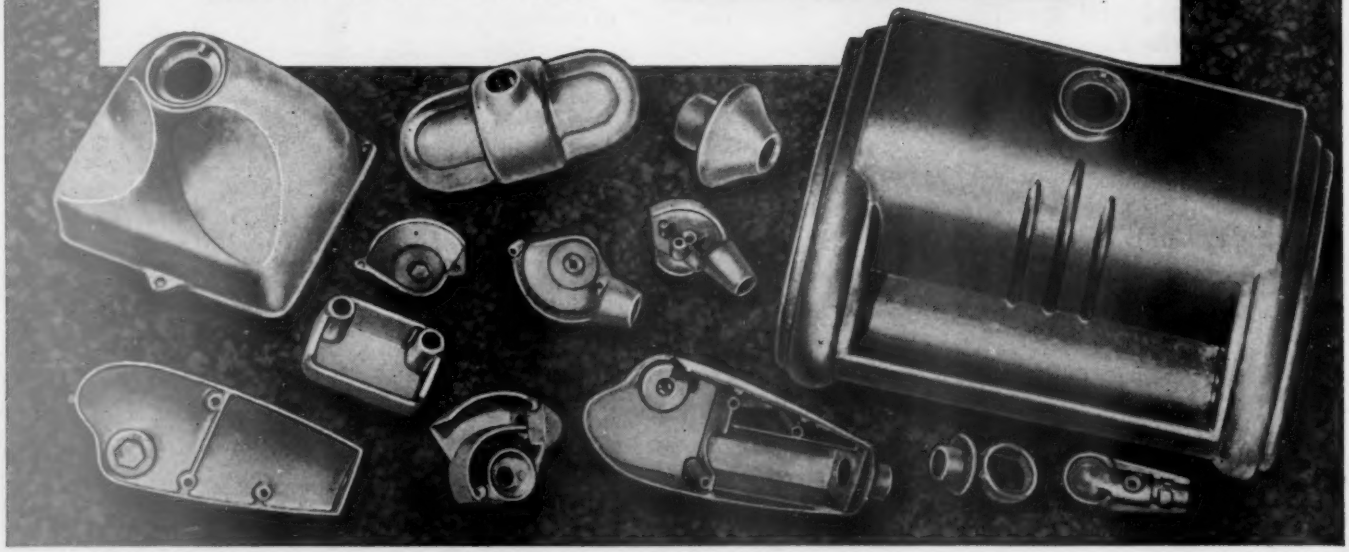
The same engineering brains that thought up this economy went directly ahead to an *added* economy—the use of die casting to make all these parts, including the two bases.

Die casting is the most economical method of producing these intricate parts—for these base clamps, articulating knuckles, and casings require thin wall sections with light weight yet with great strength.

Which is why Acme chose Mount Vernon. To make dies that will produce these varied parts at minimum cost takes experience, and extensive facilities. On both counts, Mount Vernon is the natural choice. We have a vast reservoir of experience to draw on; we have 162,000 square feet of the most modern equipment for making dies and die casting aluminum and zinc. Whether you need a single part or, like Acme, many parts, consult with us. We may show you the way to lower costs and improved products.

*Manufactured by Acme Light Products Co., Congers, N.Y.

MT. VERNON
DIE CASTING CORP.
STAMFORD, CONNECTICUT



For More Information Circle No. 149 on Inquiry Card—Page 17

Photos courtesy of International Metal Hose Company, Detroit, Michigan

Brainard®
two-way strapping service

ELIMINATED SHIPPING DAMAGE!

Brainard Salesman Dave Biggers *eliminated costly freight damage claims* for this manufacturer of flexible metal hose by recommending steel strapping, for interstate shipments. With Brainard strapping, tension can be applied and bundles held more rigid in transit. With previous shipping method using wire or rope, freight damage resulted when bundles pulled loose.

STEEL STRAPPING

STRAPPING TAPE

For local shipments by the same manufacturer, Biggers recommended Brainard strapping tape. Application is fast . . . tape dispensers can be carried from one job to another with a minimum of effort.

● In this situation, Brainard made an *unbiased* recommendation: *steel strapping* to prevent common damage on long hauls; *strapping tape* for local distribution. Only Brainard can give you this two-way unbiased service.

For a similar cost-cutting Brainard Strapping Analysis, call your nearby Brainard office today, or write Brainard Steel Division, Dept. K-7 Griswold Street, Warren, Ohio.

Brainard®
SHARONSTEEL
STEEL DIVISION
SHARON STEEL CORPORATION

COMPLETE STRAPPING SYSTEMS & MATERIALS • WELDED STEEL TUBING • ELECTRO-GALVANIZED STEEL • SCAFFOLDING • PALLET RACKS • BUILDING PRODUCTS

Offices in principal cities throughout the U. S.

For More Information Circle No. 150 on Inquiry Card—Page 17

FLEXLOC AT WORK

Power Hack Saw Builder Fastens blade guides with FLEXLOC self-locking nuts. Eight of these one-piece, all-metal locknuts are used in this assembly. And they won't work loose, regardless of vibration.

You can get the same dependable service. FLEXLOCS come in a wide range of sizes, types and materials. They are stocked by leading industrial distributors everywhere. Ask your local man for Bulletin 866. Or write STANDARD PRESSED STEEL CO., Jenkintown 31, Pa.

• • •

Use FLEXLOCs anywhere:

ON ROUGH BOLTS. FLEXLOCS smooth out bolt threads without damaging their own threads.

IN TEMPERATURES TO 550° F. in plated nuts and even higher in unplated ones. High temperatures do not affect FLEXLOCS. Nuts with non-metallic inserts fail under such conditions.

AS LOCK OR STOP NUTS. After at least 1½ threads of a standard bolt are past the top of the nut, the FLEXLOC stays put.

REGARDLESS OF MOISTURE, OIL, DIRT AND GRIT. Even conditions like these do not affect the locking ability of FLEXLOCS.

FLEXLOC®
LOCKNUT DIVISION
SPS
JENKINTOWN PENNSYLVANIA

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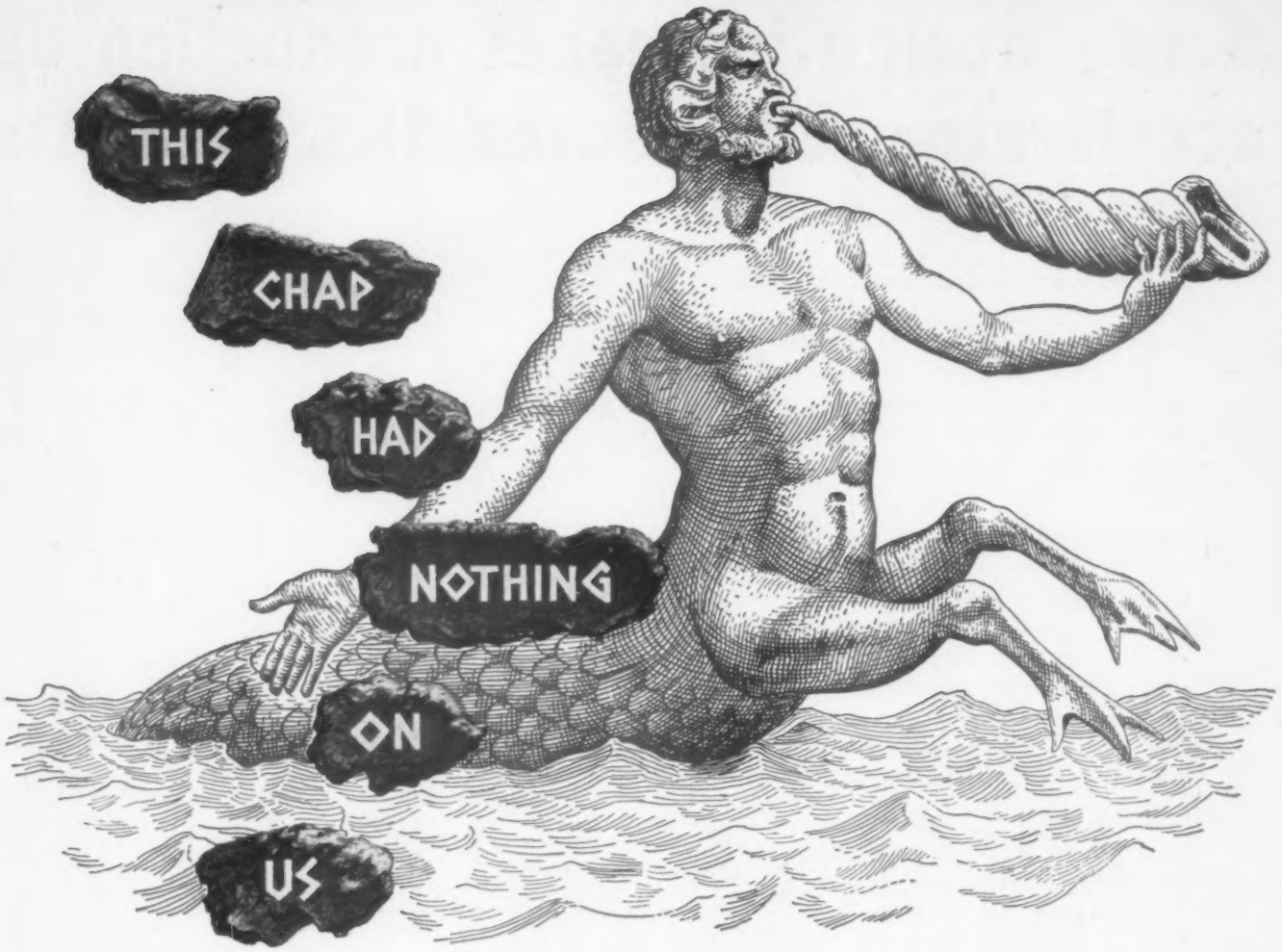


He's Proteus, Neptune's son, a highly versatile character—hence the adjective *protean.* You never knew whether next you'd see him as a lion, a raging fire, a reptile, or an angry bull.

Here at Driver-Harris, we do protean marvels too . . . with *metals.* For instance, Nichrome*, the unique heat-resistant, corrosion-resistant, electrical-resistance alloy known the world over, has long been the engineer's yardstick of comparison not in one, but *in at least 3 widely different applications.*

TO GENERATE HEAT: In all applications of producing heat by electricity, particularly to temperatures above 1700°F., Nichrome and Nichrome V set the quality standard. From simple electrical appliances such as ranges, broilers, toasters, etc. to giant industrial furnaces, no other alloys enjoy such widespread recognition and use.

TO RESIST HEAT: Because of its unsurpassed resistance to heat and corrosion, Nichrome is used for making massive furnace muffles and retorts often weighing tons, and work-loading fixtures of all shapes. The outstanding property of Nichrome here is its extremely long life, which results in low heat-hour costs.

TO RESIST ELECTRICITY: The greatest contribution to outstanding stability and miniaturization of resistors is made by Nichrome wire. Drawn to sizes as small as .0005 and finished in a variety of insulations, Nichrome is a boon to electronics in the manufacture of high tolerance resistance units of all types.

Added to the nickel and chrome of Nichrome and Nichrome V is always one exclusive ingredient—the supreme mastery of the Driver-Harris specialists, gained in their 57 years of melting and drawing experience.

In recognition of its unique properties, the United States Patent Office in August, 1908, granted solely and exclusively to us the trademark NICHROME. There is *only* one Nichrome, and it is made only by Driver-Harris.

*T. M. Reg. U. S. Pat. Off.

SPECIAL PURPOSE ALLOYS SINCE 1890 — D/H — TRADE MARK REG. U. S. PAT. OFF.

Driver-Harris Company HARRISON, NEW JERSEY

BRANCHES: Chicago, Detroit, Cleveland, Louisville, Los Angeles, San Francisco

In Canada: The B. GREENING WIRE COMPANY, Ltd., Hamilton, Ontario

MAKERS OF THE MOST COMPLETE LINE OF ELECTRIC HEATING, RESISTANCE, AND ELECTRONIC ALLOYS IN THE WORLD

For More Information Circle No. 152 on Inquiry Card—Page 17

Bundy design increases production on accelerator rods—saves 45% on costs

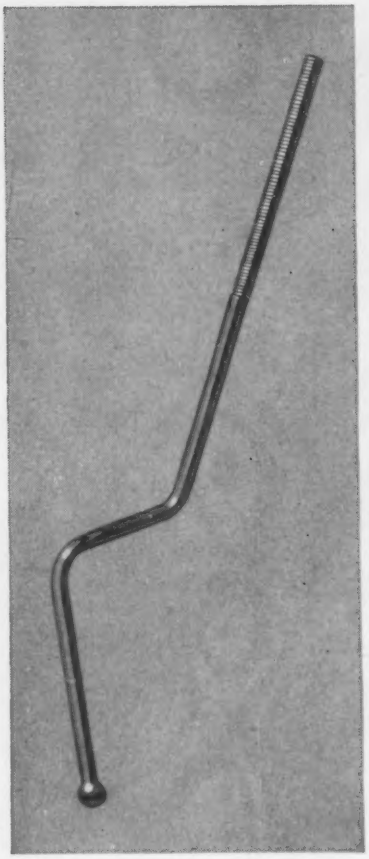
At right is a typical example of how Bundy can operate to help you in your design needs. In this application, the solution to the problem of accelerator rod production was not only simplified design, but a remarkable cost savings of 45%!

Why not check with us in your own tubing design needs? When you call in a Bundy Engineer at the design stage of your product, you can be assured of successful results. As the leading manufacturer of small-diameter tubing, Bundy has developed an engineering staff of experts who can tackle and help solve your most difficult problems.

Find out about the high quality of Bundyweld Tubing. Remember, Bundyweld is the only tubing that is double-walled, yet stronger. It has high thermal conductivity, high bursting strength, is leakproof, and takes easily to any fabrication operation. Bundyweld is the safety standard of the refrigeration industry, *and is used in 95% of today's cars, in an average of 20 applications each.*

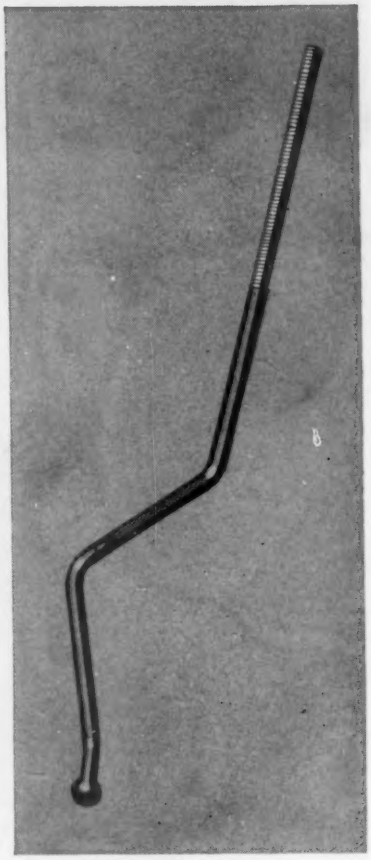
For further information, call, write, or wire us, today.

BUNDY TUBING COMPANY
DETROIT 14, MICHIGAN



PROBLEM:

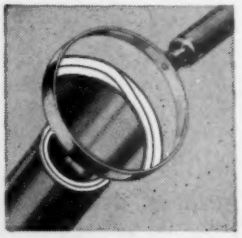
Building a light touch into an automobile accelerator used to be an expensive proposition. Rod linkage has to be rigid and precisely machined. For example, the solid steel rod shown above had to be forged into a ball on one end, machined and threaded on the other, and bent to a precise configuration on a press. These operations were very costly.



SOLUTION:

The simplified Bundy design started with a piece of ¼" O.D. Bundyweld. A spherical end is formed by automatic press at a high production rate. The other end is swaged and roll threaded, and the rods are bent to specifications on hand fixtures. Result: accelerator rods were produced at 45% savings in cost, at a higher rate of production than the old way.

Bundyweld starts as a single strip of copper-coated steel. Then it's . . . continuously rolled twice around laterally into a tube of uniform thickness, and passed through a furnace. Copper coating fuses with steel. Result . . . Bundyweld, double-walled and brazed through 360° of wall contact.

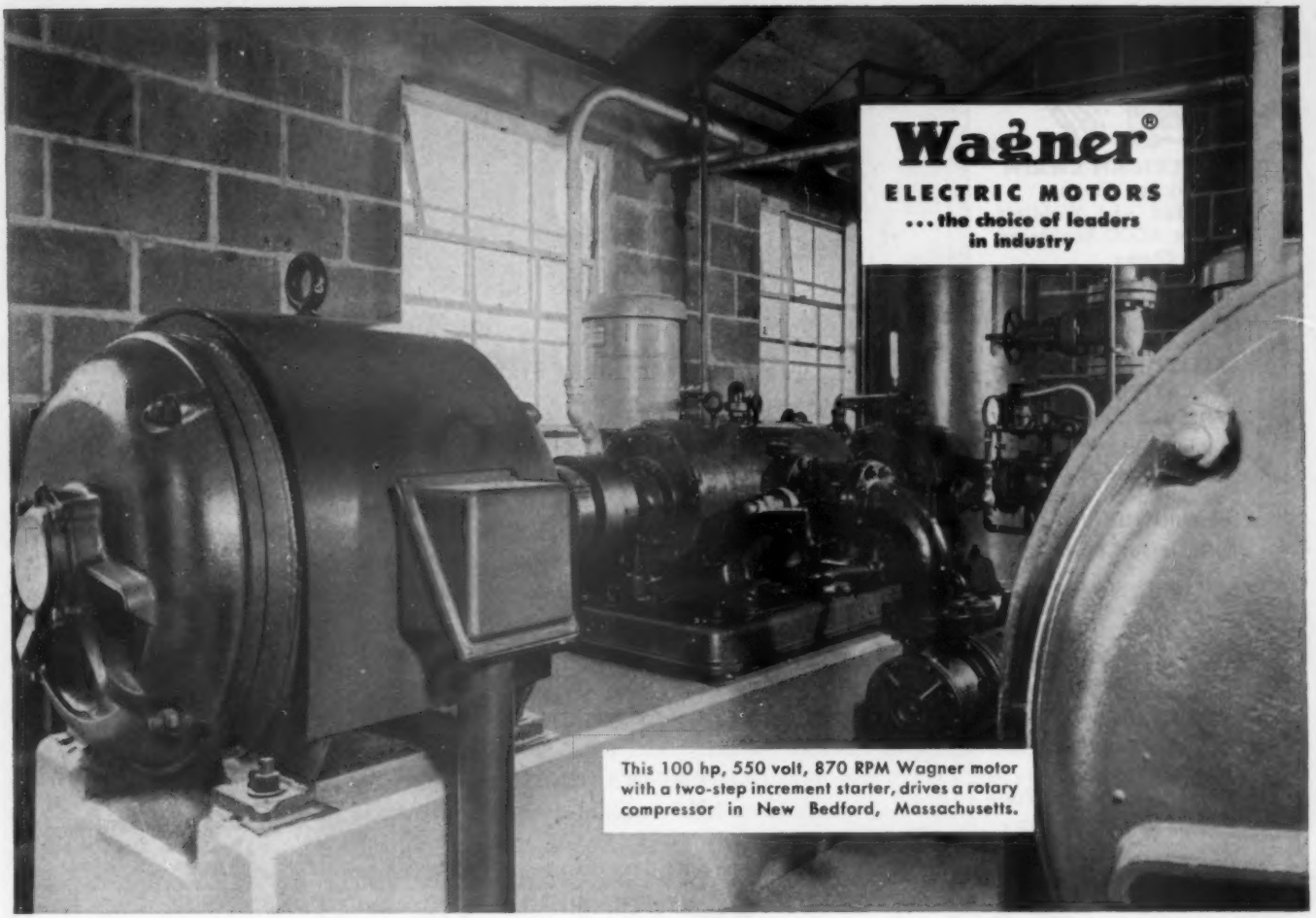


NOTE the exclusive Bundy-developed beveled edges, which afford a smoother joint, absence of bead, and less chance for any leakage.

BUNDYWELD TUBING®

DOUBLE-WALLED FROM A SINGLE STRIP

For More Information Circle No. 153 on Inquiry Card—Page 17



This 100 hp, 550 volt, 870 RPM Wagner motor with a two-step increment starter, drives a rotary compressor in New Bedford, Massachusetts.

Start large polyphase motors with minimum line voltage disturbance

USE THE Wagner INCREMENT MOTOR AND STARTER COMBINATION

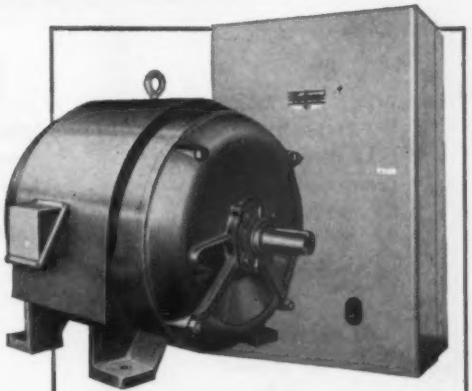
Here's a modern, economical, highly efficient way to start large polyphase motors – the Wagner Increment Motor and Starter "Package."

By reducing current drawn from the line on each point of the starter, the combination limits the inrush of motor current to values that are acceptable for the distribution systems of most power companies.

Voltage disturbances on the line are reduced because current taken from the line is not broken during the starting period–as it is when auto-transformers or compensator type starters are used.

Wagner two-step increment motor and starter combinations are suitable for most applications. For installations where unusually low inrush of starting current is desired, Wagner can furnish three-step and four-step increment starters.

Your nearby Wagner engineer will help you select the increment motor and starter combination that meets *your* requirement. Call the nearest of our 32 branch offices, or write us.



Type RP polyphase motor in ratings to 400 hp with increment type starter

Wagner Electric Corporation
6360 Plymouth Ave., St. Louis 14, Mo., U.S.A.

BRANCHES AND DISTRIBUTORS IN ALL PRINCIPAL CITIES

M55-16

ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES • AUTOMOTIVE BRAKE SYSTEMS–AIR AND HYDRAULIC

For More Information Circle No. 154 on Inquiry Card—Page 17

AMERICAN CHAIN
Weed Tire Chains, Welded and Weldless Chain, ACCO Registered Sling Chains
AMERICAN CHAIN DIVISION

ALLISON ABRASIVE WHEELS

Rubber and resinoid bonded for cutting all types of materials
THE ALLISON COMPANY

LAY-SET Preformed WIRE ROPE

Nonparell Non-Preformed Wire Rope
HAZARD WIRE ROPE DIVISION

ACCO products

These and Other ACCO Products Offer Better Values

• ACCO products are designed and manufactured to be "intentionally better." They are used directly, or as component parts in a wide variety of products and machines. They help do many jobs better. 18 Divisions of the AMERICAN CHAIN & CABLE COMPANY manufacture more than 100 essential products.

PAGE CHAIN LINK FENCE

Welding Wire, Shaped Wire, Manufacturers' Wire
PAGE STEEL & WIRE DIVISION

TRU-LAY CABLE CONTROLS

Aircraft Cable, Push-Pull Controls, Tru-Stop Brakes for Trucks and Buses
AUTOMOTIVE AND AIRCRAFT DIVISION

HELICOID PRESSURE GAGES
HELICOID GAGE DIVISION

MANLEY AUTOMOTIVE EQUIPMENT

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Power and Hand Mowers
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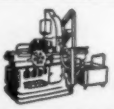

CAMPBELL MACHINES
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CAMPBELL MACHINE DIVISION

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Serving Industry, Transportation, Agriculture and the Home

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For More Information Circle No. 155 on Inquiry Card—Page 17

Whose Terms and Conditions Prevail In a Contract?

THE BATTLE of the contract clauses, reported in our November 1954 issue, continues unabated. Buyers bombard their suppliers with purchase orders, complete with terms and conditions. In return, they are strafed with sellers' contract forms, purporting to be acceptances—but setting forth a complete new set of terms and conditions which, in many cases, may be far from acceptable to the buyer. Both sides want to do business, but only on their own terms. Sometimes that can mean a substantial difference in the rights and obligations under a contract.

This counter-attacking maneuver is fraught with danger to the unwary buyer. It puts him on the defensive. Of course the seller's contract form, if it differs in any significant detail from the conditions of the order, is not an acceptance of the purchase order, either in fact or in law. There has been no meeting of the minds. It is merely a counter proposal, subject to the buyer's acceptance. Yet the inadvertent or emergency acceptance of a delivery under these circumstances can have the effect of establishing the seller's form as the contract. The alternative is to hold up the entire transaction pending negotiation and agreement.

At least one purchasing department has found a new weapon. All of its purchase orders now carry the notation:

> "Unless otherwise provided herein, any written acknowledgement of this order or the delivery of any supplies or the furnishing of any services in accordance with purchase order shall constitute acceptance by the seller of this purchase order subject to all its terms and conditions."

The clause has not yet, to our knowledge, been tested in a court decision. Company counsel, however, is confident that it will establish the terms and conditions of the purchase order as those governing the transaction, regardless of the form of acceptance.

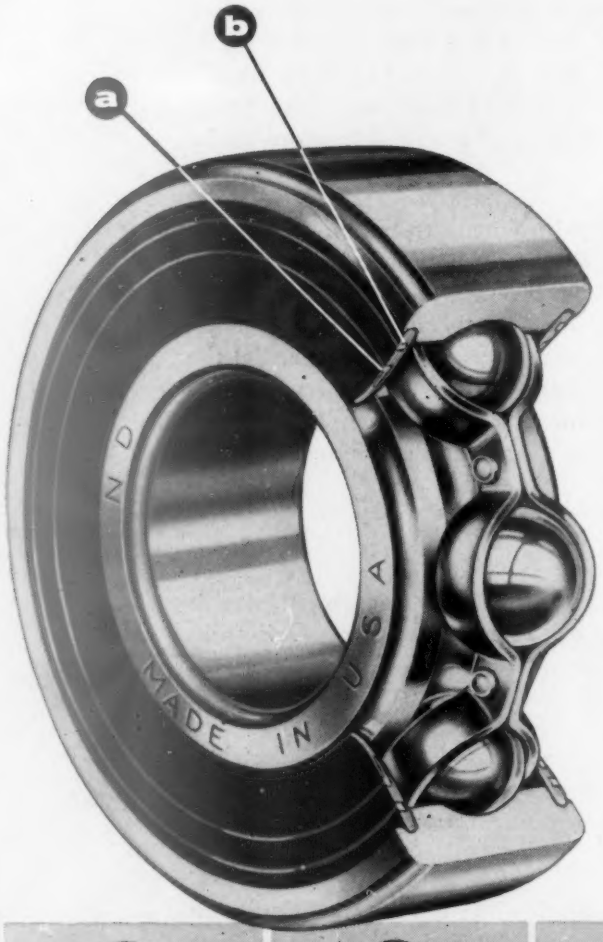
Perhaps the most unfortunate part of the whole situation is the difficulty in getting agreement between sales and purchasing departments within the same company as to the proper basis on which to do business. A company should be willing to sell on the same conditions under which it is willing to buy, and *vice versa*. Both policies are weakened when the right and left hands are working against each other. Surely we cannot expect to achieve any acceptable industry-wide policy on terms of purchase and sale unless we start with agreement at the individual company level.

Stuart F. Heinritz

FACTS

about

NEW DEPARTURE
BALL BEARINGS



New Sentri-Seal...on guard against dirt and wear!

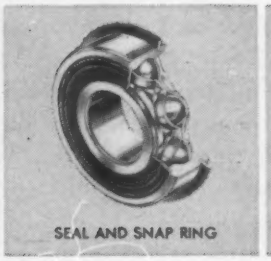
The unique design of the Sentri-Seal gives optimum protection against dirt, and includes a number of other major advantages.

Sentri-Seals are quickly removed, easily replaced. As the seal is of synthetic rubber, in which two metal rings are embedded, a constant-rate spring is created between the rings. Inherent flexibility prevents distortion of the bearing outer ring due to seal insertion, permitting the use of bearings to the higher accuracy specifications. The spring action maintains an efficient sealing contact with the bearing ring to bar dirt and retain lubricant. Sentri-Seals are relatively inert to oils and greases and operate satisfactorily through a temperature range of −40°F to 225°F. Specifications available for still higher temperatures. In applications where relubrication is desired, it is easily accomplished by the injection method.

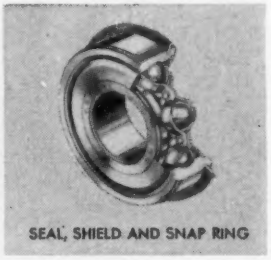
The New Departure Sentri-Seal basically consists of two separate metal rings, "A" and "B", embedded in synthetic rubber, resulting in a spring which absorbs distortion and deflection. The seal is not drastically influenced by axial displacement due to bearing end-play within prescribed tolerances, and provides efficient sealing at low torque. Bearing shown is equipped with two seals.

ONE SENTRI-SEAL

SEAL AND SHIELD

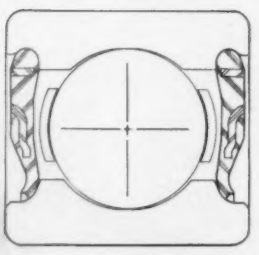

SEAL AND SNAP RING

TWO SEALS AND SNAP RING


SEAL, SHIELD AND SNAP RING

The diagram shows in section the New Departure Sentri-Seal. Lip contacting surfaces are form-ground simultaneously with the ball race, giving an extremely high degree of concentricity between sealing surfaces and the raceway.

Sentri-Seal is available for a range of sizes in single-row, standard-width bearings and also in two types of New Departure adapter bearings. Sizes, dimensions and capacities are listed in the latest New Departure catalog.



Write for full details on Sentri-Seal

NEW DEPARTURE • DIVISION OF GENERAL MOTORS • BRISTOL, CONN.

For More Information Circle No. 156 on Inquiry Card—Page 17

Highlights

This issue's important features summarized for the busy reader

Printing schedules being what they are, most of the copy for this issue had to be in our linotyper's hands several days before the **N.A.P.A. Convention** sessions took place, but our staff photographers have put together a special pictorial insert section to bring you promptly and vividly the highlights and the spirit of the meeting. Turn to page 75 for this interesting feature. In next month's issue we shall report in greater detail on the leading addresses and group meetings that make this annual gathering a milestone of purchasing progress.

This month's **Guest Editorial** (page 69) is contributed by Don R. Coultrip of Dow Corning Corporation, who has served during this past year as N.A.P.A. Vice President for District 4. The cover illustration shows Mr. Coultrip in the typical surroundings of a large chemical plant—the world's largest producer of silicones. His important part in this splendid organization makes him well qualified to discuss the topic: "Your Seat at the Management Table."

Uniform Flavor and Quality are essential in producing a famous brand-name coffee, and that poses some very special problems for the purchasing department. It starts with getting the right raw material, but that's not all, for flavor is an elusive and temperamental attribute, and blending is a fine art. You'll be interested in the story of this unusual purchasing operation, and maybe you'll be thankful you're in a business where precision testing is a matter of machines and measurement instead of the sensitive and fickle human palate.

Another article in John Gustafson's thought-provoking series on **Crossbreeding Ideas.** This month he takes a look at the power of the printed word, so successfully exemplified by periodical publications. We are a nation of readers. Capitalize on this trait for better purchasing, through the judicious use of departmental bulletins. The story on page 92 tells how.

There's something magnetic about graphic presentation, and an unusual application of tiny permanent magnets has made possible a highly successful technique for the development of **Procedure and Flow Charts,** with bonus values in employee participation and training. Turn to page 86 to see how one purchasing department is using this technique to good advantage.

One of the serious problems of purchasing has its origin in suppliers' shipping departments. What can a purchasing agent do to promote **Adequate Packaging** so as to avoid the waste and annoyance of receiving purchased products in damaged condition? Plenty, if he will put his mind to the problem and cooperate intelligently with his suppliers toward correction of the situation. A pair of complementary articles (pages 98 and 99) present the problem and show how one purchasing agent has effectively improved the record in his company.

You can work with suppliers too in attaining the goals of **Cost Reduction.** Westinghouse Electric Corporation has been conducting a series of "Suppliers Day" meetings to put cost reduction on a mutual cooperative basis. The project is reported on page 95.

Vendor's Certification of quality minimizes the need and expense of inspection on incoming shipments. The article on page 116 tells how such a program can be put into effect.

Proper **Lubrication** is a matter of application as well as lubricant. For a comprehensive review of oiling devices, see page 111.

Don't overlook these regular monthly departments, compiled for you information: the Washington Report (page 13); New Catalogs (page 17); New Equipment and Products (page 128); News of Your Suppliers (page 22), of Association Activities (page 174), and of Men in Purchasing (page 230); Keeping up to date on such developments makes for better buying.

COMING—IN NEXT MONTH'S ISSUE

A detailed report of the 40th annual convention

National Association of Purchasing Agents

having trouble getting steel?

In the face of high demand, some steel users are finding it difficult to get just what they need when they need it. If you are having trouble meeting current steel requirements we probably can help you. Here's why:

First, despite the fact that our own stocks have been hard hit in spots, we still have the world's largest inventories of carbon, alloy and stainless steel on hand—thousands of tons—and these stocks are being replenished daily.

Second, when local shortages do occur your nearby Ryerson plant can draw on stocks at fifteen other Ryerson plants and, in this way, can often take care of customers who would otherwise have to delay production or maintenance work.

Third, when the exact kind or size you need is not on hand, experienced Ryerson steel men can often supply a practical alternate from our large, diversified stocks. For example, heavy carbon steel plate, sheared into flat bars—or straight-chrome stainless to replace chrome-nickel types, etc.

And most important, you can depend on Ryerson to maintain positive control over the quality of your steel. In specifying, in handling, in cutting, first emphasis is always on quality under the Ryerson Certified Steel Plan. So whether or not you are having trouble getting steel, you will find our unequalled stocks, extensive facilities, and experienced organization are your most dependable source for help on steel problems.

RYERSON CERTIFIED STEELS

RYERSON STEEL

In Stock: Carbon, Alloy and Stainless Steel; Bars, Structurals, Plates, Sheets, Tubing, etc.

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • PHILADELPHIA • CHARLOTTE, N. C. • CINCINNATI • CLEVELAND
DETROIT • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

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Your Seat at the Management Table

By Don R. Coultrip

YOUR SEAT at the management table was earned by you and other purchasing men at a time when delivery and production were the two all-important factors. Have you thought recently about the occupant of that same chair—you? Are you still the vital part of your company's team that you were, or do you now feel that you can continue to occupy it on the basis of past performance?

What part are you now playing in the operation of your company? Most manufacturing and service organizations must operate now on a very competitive basis. Have you considered whether you are doing all that you should to better your firm's competitive position?

No one is in a better position than the purchasing man to contribute greatly to the reduction of costs—and this reduction does not need to be confined to buying materials and supplies at lower cost, although that is an excellent place to start.

Why not take an active part in the cost reduction program at your company? In fact, you might be the logical man to be in charge of such a program. You have intimate knowledge of the materials, equipment, and supplies that are used. You are well aware of the cost of utilities and raw materials. In fact, you have a lot of pertinent information that most of the other people in your company do not have. Why not put this knowledge to work? You don't need to wait until you are asked; start the ball rolling and you will be surprised at the support you get. Most companies estimate that it requires from $7 to $15 worth of sales to equal a $1 saving. Maybe it is difficult to get additional sales volume at this time, but the opportunities to save dollars are numerous.

Dollars in wasted utilities can represent substantial savings for many manufacturing plants. Losses through leaks in air lines, steam

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Don R. Coultrip is Manager of Purchases and Stores for Dow Corning Corporation at Midland, Michigan, the world's largest Silicone plant, covering 100 acres and producing a complete line of more than 200 Silicone products serving practically every type of industry. The cover illustration of this issue shows Mr. Coultrip at the "tank farm" or bulk storage area of the Midland plant.

He is a native of New London, Ohio, and acquired his early business experience with the Hinchcliffe Lumber Company and J. W. Hartley Company before joining Montgomery Ward & Company in 1937. He spent the next six years with Montgomery Ward as salesman, department manager, and store manager in Ohio, Indiana, and Michigan. In 1943 he entered the purchasing field as a priority analyst in the purchasing department of Dow Chemical Company. The following year, when the Dow Corning Corporation was formed, he was named Purchasing Agent of the new organization. In 1952, he was appointed Manager of Purchases and Stores. In addition to these duties, he is chairman of the company's cost reduction committee and a member of the auxiliary management committee.

Mr. Coultrip joined the Saginaw Valley Purchasing Agents Association in 1944, and has taken an active part in its affairs. He became Vice President in 1950, President in 1951, and National Director in 1952. Last year he was elected to the National Executive Committee of the National Association of Purchasing Agents as Vice President for District 4, which includes the Central Michigan, Detroit, Eastern Indiana, Fort Wayne, Grand Rapids, Indianapolis, Kalamazoo, Saginaw Valley, South Bend, and Western Michigan Associations.

He is a member of The First Methodist Church; president of Mid-Bay Investors, a local investment organization, and is active in school, boy scouts, and civic affairs. His hobbies include photography, hunting, fishing and boating at the family cottage on Eight Point Lake.

The Coultrips have three sons and two daughters, ranging in age from six months to sixteen years.

pipes and valves, water lines, wasted condensate, unused lights and electrically heated equipment, represent losses of thousands of dollars. Waste of gloves, work clothing, shoes, wiping rags, hand tools, and many like items that your company probably supplies, results in great additional expense. Perhaps many people in your company, even those in supervisory capacities, are not aware of the costs of individual items that they control each day. Have you thought about acquainting them with these costs? You might be surprised at the savings that can be attained.

You might ask why you should be concerned with all of these expenses. They are not expenses that are attributed to the operation of the purchasing department, to be sure, but your company's dollars are being spent—yes, even wasted—on them. That is why you should be interested.

Have you given thought to buying raw materials on specifications that insure you of materials that are usable in your production plant with a minimum of waste? On the other hand, have you considered instances where you are over-specifying—buying materials of a better quality, and subsequently of higher price, than is required for your use? I am well aware that most of us represent companies that are not large enough to support a full-time value analysis department, but every one of us can analyze values. Unfortunately, however, most of us continue to buy the same thing that we bought the last time, without really knowing whether it is the best value for our specific needs.

Let's look at your raw material purchases with a thought of cost reduction. How many items have increased in usage to the point where you should be buying in larger quantities to take advantage of quantity discounts and price breaks, freight allowances on truck and carload quantities? Have you considered the savings possible by full truck load or tank car shipments, and the resultant reduction in handling cost, as compared with less truckload and l. c. l. shipments? Have you balanced the cost of truck, rail, and water shipments so that you really know what it costs to deliver a raw material to the point of use in your plant?

Have you considered the value of standardization in your business? This is another field where you can actively participate because of your knowledge of varieties, costs, and uses. Standardization programs are not only for the largest organizations. They will fit organizations of any size and type of industry, but usually have to be tailored to your own use. Standardization of tools, equipment, maintenance materials, raw materials, shipping containers, labels, office machines, paints, production machines, and welding equipment may have varying degrees of importance in your operation, but standardization will reduce costs and save you money.

How can public relations save you money? It's easy! How many of you have held an open house for your suppliers, where you invited the salesmen who call on you to come into your plant—took them on a tour where you showed them your offices, laboratories, power plant, research and testing departments and production facilities, where permissible? Such a program can have fine results. Who is happier, and who will tell more people about something that he knows before some one else knows it, than a salesman? He not only advertises for your company when he visits other buyers, but he shows his appreciation by his service to you in fulfilling your needs. This is not only true when materials are hard to get; it is true now, or any other time.

To summarize briefly, here are some of the things that it might be practical for you to consider when evaluating your responsibility to your company:

Am I buying at the right price?

Am I buying the right quality and quantity?

Am I specifying the proper method of shipment?

Have I done enough about standardization?

How about value analysis—have I used it?

Am I scheduling deliveries properly?

Are my public relations showing?

What have I done about cost reduction in relation to other than purchased items?

How has my boss scored me on these responsibilities?

If your score is good on tests like these, you are an essential member of the management team. If it is not good, you may find yourself riding the bench on the sidelines.

What Automation Means

AUTOMATION is no revolutionary concept. It is rather a next logical step in a slow evolution. We have in our shops today examples of the various phases through which we have progressed: job shop—the lowest volume, highest cost method of production; progressive line manufacturing, where machines are arranged according to the work to be done on the product; conveyorized line manufacture; and finally automation, with its high degree of automatic handling and control.

Your automobile, costing $3,000 today, would cost about $100,000 if it were manufactured by job shop methods at present labor rates! Obviously the automotive industry would be very small if such were the case. So would many supplier industries.

Faced with an expanding, eager population, industry had to find a way around the tremendous cost of hand labor. Without the advances in manufacturing technology, we might still have some of the appliances we have today, but they would be a far cry from present automatic, labor saving devices. What's more, they would cost a lot more and would be available only to a fortunate few. Industry is not alone in its need for automation.

It is not realistic to expect to automate the job shop. But we can expect to raise it to the next higher level of manufacuring. With additional investments in machinery and floor area, any one of the manufacuring types can usually be raised one notch up the scale. With such an approach, we can hope to realize economic automation naturally, with no sudden shift or ultimate displacement of workers.

If we ever see the advent of the completely automatic factory, it will be because we are ready for it. It will not upset our balance. It will come simply as another step in the long evolution, as an economic necessity. To fear such a step is to fear America itself.

(Extract from an address by D. C. Burnham, Vice President, Westinghouse Electric Corp., at the 19th annual Machine Tool Electrification Forum, April 1955.)

Little Things Cost Big

•

Maybe you can't eliminate emergency field purchases but it's part of your job to keep them in control and to help the field man do a better buying job

Address at a meeting of the Carolinas-Virginia Purchasing Agents Association, Charleston, S. C., March, 1955.

By Thomas J. Garrett, Jr., Assistant Purchasing Agent, Mill Power Supply Company, Charlotte, N.C.

LITTLE things can be of enormous significance to our actual and potential purchasing performance. The little things we are talking about are several:

1. Operating supplies and maintenance items purchased by branch or field personnel.
2. Supplies purchased by field personnel contiguous to a construction project.
3. Purchases for breakdown, for restoring service, or others considered as emergency.

Individually, such transactions are small and an insignificant part of the job relative to total volume of purchases, but collectively they cost big. They represent a respectable wad of money, over which the purchasing agent would fret considerably if it were compressed into one or a few transactions.

Handling Field Purchases

No matter how you handle these field purchases, you have to contend with big cost. Some companies use the blanket order system or some similar provision for prior authorization. Some companies assign a block of purchase orders to field personnel, later requiring a requisition and written order. Some companies allow no field purchases except for emergencies.

In the case of blanket orders, you have the problem of a probable higher level of material cost occasioned because the transactions are not handled by personnel expert in purchasing. But in trying to control this cost by requiring requisitions for all items, you assume a purchasing cost in writing the order and handling the rest of the functions on the order.

In one Utility, field purchases of less than $5 require no requisition, and the purchaser is reimbursed on an expense account. In other cases, where more substantial purchases are required, a group of purchase orders are assigned to field men, who are accountable to the Purchasing Department for requisitions to confirm the purchases made. The actual purchase, to whatever extent, is made by field personnel, but the Purchasing Department has the expense of handling a purchase order for each transaction. The company recognizes the extent of the paper work, but considers the control worthwhile.

Another Utility uses a system of local purchase order forms to be used by field personnel for purchases from nearby suppliers. Their use is limited to purchases of $10 or less, except in cases of emergency, and they are not to be used for any items regularly carried as stock at the central warehouse. Here also, the actual purchase to the extent allowed, is made by field personnel, but some of the order handling expense has been avoided.

This company recognizes that the success of the system depends on the people involved, who do the actual purchasing. Some of the faults of the system are listed as:

1. Small accounts with numerous suppliers each month.
2. Tendency to poor planning. In spite of the restriction, stock items that should have been requisitioned through the Purchasing Department are bought on these orders. Field men have a bountiful supply of valid reasons as to why the field purchase was necessary.
3. Generally higher prices are paid without too much question.
4. Entire crews are held up while a messenger is sent to a supply store for items that should have been aboard their truck when they went out on the job.
5. Difficulty in charging material costs to proper accounts, as end use frequently is not noted on the order.

This company has considered a blanket order system, but has not installed one, fearing that it would increase "impulse buying" by making field purchases so easy that everyone would consider he had an invitation to go on a buying spree.

Blanket Order System

Our company does use a blanket order system for restricted local purchases. Because of the many scattered locations at which needs arise, such a system is almost necessary, in spite of its obvious shortcomings.

We have 34 retail branches, consisting of a store, local accounting, engineering and service personnel and equipment. There are 25 operating district headquarters on the transmission and switching system. There are 36 generating plants of various sizes. Our Construction Division has major projects under way constantly at two and sometimes three locations.

To service these points for field purchases, we have an average of 400 blanket orders in operation. We think we save a great deal in handling expense, because, if each transaction covered by a blanket order were covered by a separate purchase order, in a year's time the number of these orders would be equivalent to all purchase orders

written in one month, or the purchase order load would be increased by more than 8%.

Our restrictions on the use of these orders are:

1. The order must be established from a regular approved requisition, and will be in force for a calendar year unless cancelled for any stated reason.

2. No purchases may be made against these orders for inventory.

3. No single transaction may exceed $50, except in an emergency. On emergency field purchases over $50, the Purchasing Department must be notified of all particulars, and a requisition forwarded so that the transaction will be confirmed by a regular purchase order.

4. Certain persons in the branch, district, or operating property are designated as authorized to make purchases against a blanket order, and they must sign delivery receipts. Names of these persons are filed with the Purchasing Department and with the supplier holding the blanket order. Suppliers are instructed not to serve material on a blanket order except to such authorized personnel.

Once each month, the supplier sends a triplicate invoice to the Purchasing Department, billing for deliveries made during the month. A copy of each delivery ticket, signed by the authorized personnel, is attached. These invoices are checked as carefully as possible in the Purchasing Department.

No Panacea

In the case of our permanent operating bases, most of the blanket order suppliers have been serving us for a long time, and interviews and correspondence have established a level of price and service as good as we think we can get under the circumstances. The suppliers, of course, are added to and subtracted from as time goes on, both from Purchasing Department action and from recommendations of field personnel. On major construction projects, a buyer from the Purchasing Department makes the round of suppliers in towns near the site, and tries to secure a favorable price and service level. Bear in mind that several suppliers of the same type material will hold blanket orders, so that in the everyday selection of items and sources it is the field personnel who are doing the actual buying.

Our blanket order system is not proposed as a panacea for the money-wasting evil of a lot of small local purchases. One of its greatest weaknesses is that some apathy may be generated by your very effort to improve things. Reliance may be placed on a ready-made, easy course, to the extent that proper planning suffers. Many emergencies are not breakdowns; they occur from lack of planning, lack of concern over being prepared to prevent emergency buying.

Improving Field Purchasing

The nut of this problem is the fact that in Utility service companies, and to some extent in other industries, a part of the purchasing dollar is spent by personnel other than those expert in purchasing. The requirement in the field, that must be purchased by someone in the field, will always be with you. It can be minimized, but not eliminated. However small, it is still part of the purchasing dollar, and therefore our responsibility to see if we can save a piece of it.

If the field man must spend some of the money for materials and services, how can we help him do it? By helping him, I don't mean cramming a set of rules and regulations down his gullet. I mean to make him *want* to cooperate. He may do that if he realizes that in addition to his own job, he is helping you spend upwards of 65% of the company's dollar, and that in these times of astronomical costs one of the biggest reflections in earnings can be made in saving part of the purchase dollar.

It's an *educational* process—making him know the why's and wherefor's, the reasons for good purchasing, the value to the company, and the value to his own job. Proselyting at every opportunity (and you will have to make the most of opportunities) patiently and constantly will surely help. It's all right to yak, but yak with a purpose, with sound, simple answers. One company tries to reach the field man's cooperative gland through the monthly employees' magazine. The subject sentence of one such article reads: "The responsibility of those authorized to sign requisitions for materials is comparable to that of the Company Treasurer, for both have authority —and consequently serious responsibility—in disbursing Company resources. . . ." Somewhere, that sort of thng will do some good.

It's also a *selling* process. You spend good time selling your management on the value of your department—so protect your interest. There are some fellows out there helping you do your job. Be sure they know what they're doing. Sell them the principles of purchasing as good principles for any job. Precept and example will help. If you are a good Purchasing Department, it gets around. Anyone is willing to follow a good leader.

It may be an *incentive* program, with various districts or branches competing as to recorded number of emergency purchases, money spent and for what. If nothing else, such a program would keep alive a consciousness of the need for careful performance.

It's a cooperative program. Maybe you could "swap" him. You are partly a service department. With order tracing, expediting and special attention to his pet requisitions, you have helped him out many times with his job. No reason why he shouldn't head some of your suggestions when he is purchasing.

Checking invoices and records of field purchases already made and finding inequities, unreasonably high prices, poor performance and service, is a necessary part of it, but that's a check, a stop-gap. You can chew out the supplier and the field personnel, and make some corrections by credits, but it's a sorry job after the harm is done. It will work lots better if you get your field man cost conscious and imbued with some of the principles of good purchasing which you know so well. He needs to have a little of the principles and the spirit of purchasing in his spleen to be a part of the everyday motivation in doing his own job.

Perhaps you think that the result wouldn't be worth the effort, that the problem doesn't warrant the time. But when you translate it into what must come into the front office to pay for the waste, these little transactions count big. A gas Utility estimates that gross revenue of 15 to 16 thousand dollars has to be realized to replace one thousand dollars wasted in poor purchasing. That money is real, and in a year's time there is a lot of it. And it's purchasing money. You purchasing agents who have hacked out, polished and tempered your worth to your companies can sniff out a way to save a little more of it.

If you can *improve* performance in this area, and *prove* you did it, your management and your consumers will love you.

How we got where we are

Purchasing Rounds Out Scientific Management

By Alfred Bornemann
Professor of Business Administration
Norwich University
Northfield, Vermont

THE emergence of purchasing as an independent function in the industrial organization filled a significant gap in the field of scientific management. Moreover, since it has been formally recognized and has developed scientific techniques of its own, it has contributed substantially, in turn to the improvement of over-all management.

A brief historical review will help to show this development in proper perspective.

By the 1880's, industrial enterprises had become fairly large and complex. Machinery, by comparison with that of an earlier period, was highly developed, and operations were becoming more and more specialized. However, progressive as some aspects of manufacture had become, there was one feature of production to which adequate attention had not been given. This was *management itself.*

Although operations were interrelated, foremen were independent managers of their own shops. Management as a whole was overlooked because the men responsible for the advances in manufacturing techniques were primarily technical men who understood the engineering and mechanical aspects of operations but had no occasion in their education or experience to think about management as something of a field of study in its own right. College courses on management and specific literature on the subject were to come later. As a result, the specialization in machinery and production was not accompanied by corresponding improvements in planning, supervision, and coordination of production.

Scientific Approach to Production Efficiency

The American Society of Mechanical Engineers, founded in 1880 to concern itself with the development of machinery and engineering techniques related to production, soon directed attention also to industrial management, with the objective of *improving production.*

One of the first matters to be considered was the devising of a satisfactory wage incentive system. This, it was thought, would be a substitute for the close supervision formerly possible in the smaller plant. Various well known systems were developed by the early leaders of scientific management.

Frederick W. Taylor pioneered in stressing the importance of setting standards of worker performance by *time study.* He later saw that specifications for the proper day's work for each operation could be valid only if derived from a *standardized machine.* Frank W. Gilbreth meanwhile stressed the importance of developing *motion standards.*

Although the term "scientific management" was first applied to methods of securing *labor efficiency,* it soon became more widely recognized that the greatest labor efficiency is possible only with standardized equipment, efficient layout and flow, proper material handling devices, and improved management. In other words, scientific management was seen to require the application of scientific methods to *all phases of management.*

Standards Provide Key to Efficiency

All functions and operations must be investigated objectively and analyzed to determine the best and most efficient methods of performing them. The methods found most efficient are then *adopted as standard.* It is necessary to determine not only the best methods of doing work, but also standard materials, products, and procedures.

The investigations necessary to determine standards are in themselves informative. Once the standards have been set (subject always to review, of course) they serve as the basis of an efficient system. Some proponents of scientific management, even today, seem to believe that the proper use of scientific method is the most important quality of good management, implying that experience and good judgment are of secondary importance. But this view can be carried too far, since the process involved in setting standards requires experience and judgment.

Company standards may be classified as (a) technical, and (b) managerial. The former cover production, processess, materials, and product. The latter are concerned with such matters as organization, worker performance, and system.

Some companies have standards organizations as a staff function under a top engineering officer. Formal policy committees including men from engineering, purchasing, and production, may plan the standards program and organization in broad outline. Some companies proceed on a less formal basis, by means of consultation and conference. Standards manuals, carefully prepared and kept up to date, are valuable in putting standards into effect.

The products of a company must be considered in relation to the plant facilities and operations. Specifications for the products are carefully drawn up, and these product standards determine the necessary layout, machinery, and equipment. *Standard specifications* must be set for materials, parts, and processes. Standard methods and production time standards are essential.

In material standardization, the major factors are type, quality, and reliability. Quality is a relative term, related to the type of final product and the price line in which it is to compete. The best (suitable) quality materials for one-dollar fountain pens

are, of course, different from the best quality for ten-dollar pens. In both cases, the best quality for the particular product is determined upon and standardized. Consumers may regard the material in the dollar pens as of *lower quality*, from their point of view; yet these materials may be of *best quality* from the production point of view, in that they meet the specification. Naturally, for many reasons, it is necessary to be alert to possible substitution, or revised standards, with other desirable material.

Standardization of parts on a broader basis than individual company standards, and reduction of the number of varieties, made notable progress under the stimulus of war emergency, beginning back in World War I, and continued in the postwar period. The United States Department of Commerce played an important part in turning attention to standardization and simplification. Many organizations in different industries developed standards. Leadership on the part of an influential firm in an industry has sometimes been the generating force in the development of standards. Industry agreement may also lead to standardization of various parts, as in the automobile and electrical equipment industries, permitting the release of competition in other directions. The American Standards Association provides a valuable and effective medium for arriving at such agreements. World War II gave another strong impetus to the movement. Following the war, the trend continued at a somewhat slackened pace, but has recently gained new momentum through "rediscovery" of its inherent economic advantages.

Emergence of the Purchasing Function

During the latter stages of this development, purchasing received more and more attention. The emergence of purchasing as a specialized and independent function was stimulated by two desires: to centralize procurement for purposes of control, and to relieve the various production and engineering departments of the responsibility for doing their own buying. Standardization made this practicable, and the growth of large scale industry and large volume requirements made procurement a full-time job.

Decentralized purchasing was uncoordinated, haphazard, and frequently resulted in working at cross-purposes. Centralized purchasing fixes responsibility, promotes uniform policies, and facilitates the setting up of adequate procedures, routines, and records. It frees department heads and foremen to devote the time they would otherwise spend in buying, for the actual operations of their departments.

Specialization also improves the efficiency of the buying operation, as a result of combining orders, securing quantity discounts, and locating better materials and sources of supply. Bills can be paid more promptly to take advantage of cash discounts. Inventories can be controlled more satisfactorily, thus reducing storage, handling, and interest costs.

Although materials control first attracted attention during the first World War, when shortages threatened, it was not until the heavy inventory losses sustained during the depression of 1920-1921 that careful and continuing thought was given to inventory control policies. The desirability of keeping minimum inventories consistent with requirements and availability of supplies was widely and continually discussed. The question became recognized as one requiring consideration by every company.

The possibility of limiting inventory accumulation was meanwhile enhanced by improvements in transportation and communication. At the same time it became clear that inventories which are either too large or too small result in costs higher than necessary. Emphasis on style changes, together with successive improvements in products and manufacturing processes also required the limitation of inventories. Application of inventory control eliminated inventories as a major factor in the depression which began in 1929. During World War II, the vast production program called for what amounted to a nation-wide system of materials controls, with allocations to individual producers. The early developments under private auspices laid the foundation for whatever efficiency accompanied this program.

Purchasing Adapted to Over-all Management

As already noted an early stimulus to the development of purchasing as a separate function came from the desire to centralize it. With the passage of time, companies having scattered plants have quite generally undertaken a form of organization involving some degree of decentralization in buying.

Control of inventories from a central source at some distance from the plant may be considered too inflexible and costly. Warehouse facilities may have to be larger than desirable. Emergency requirements calling for the revision or cancelling of orders, as well as the need for servicing and repairing equipment call for quick action. There may be specialized local suppliers from whom purchases can be satisfactorily made. Where the responsibility for the profitable operation of a plant or division is vested in local plant management, there is need for close liaison and coordination within that management unit.

Whatever the arrangements regarding such decentralization that may be decided upon, however, the significant point is that policies of this sort are part of the evolution of purchasing as an independent function, and they could scarcely have been worked out successfully independently.

Regarded as the first step in production, purchasing is logically related to storeskeeping and materials handling which follow procurement. These in turn are all related in a significant way with production control—the original objective of scientific management. Modern production control methods could in fact not have been developed without the contribution of a clearly defined purchasing function which laid the basis for careful scheduling and dispatching.

Although not consciously developed as part of the scientific management movement, purchasing also contributed to the possibility of standard products and the necessary specifications for materials, parts, supplies, machinery, and tools. Purchasing contributed to the possibility of further standardization in production. It is in this sense that it has taken its place as an integral part of the scientific management movement, as well as present-day progress in management efficiency. Meanwhile, it has necessarily developed its own standards and procedures as the means of carrying out its part in management.

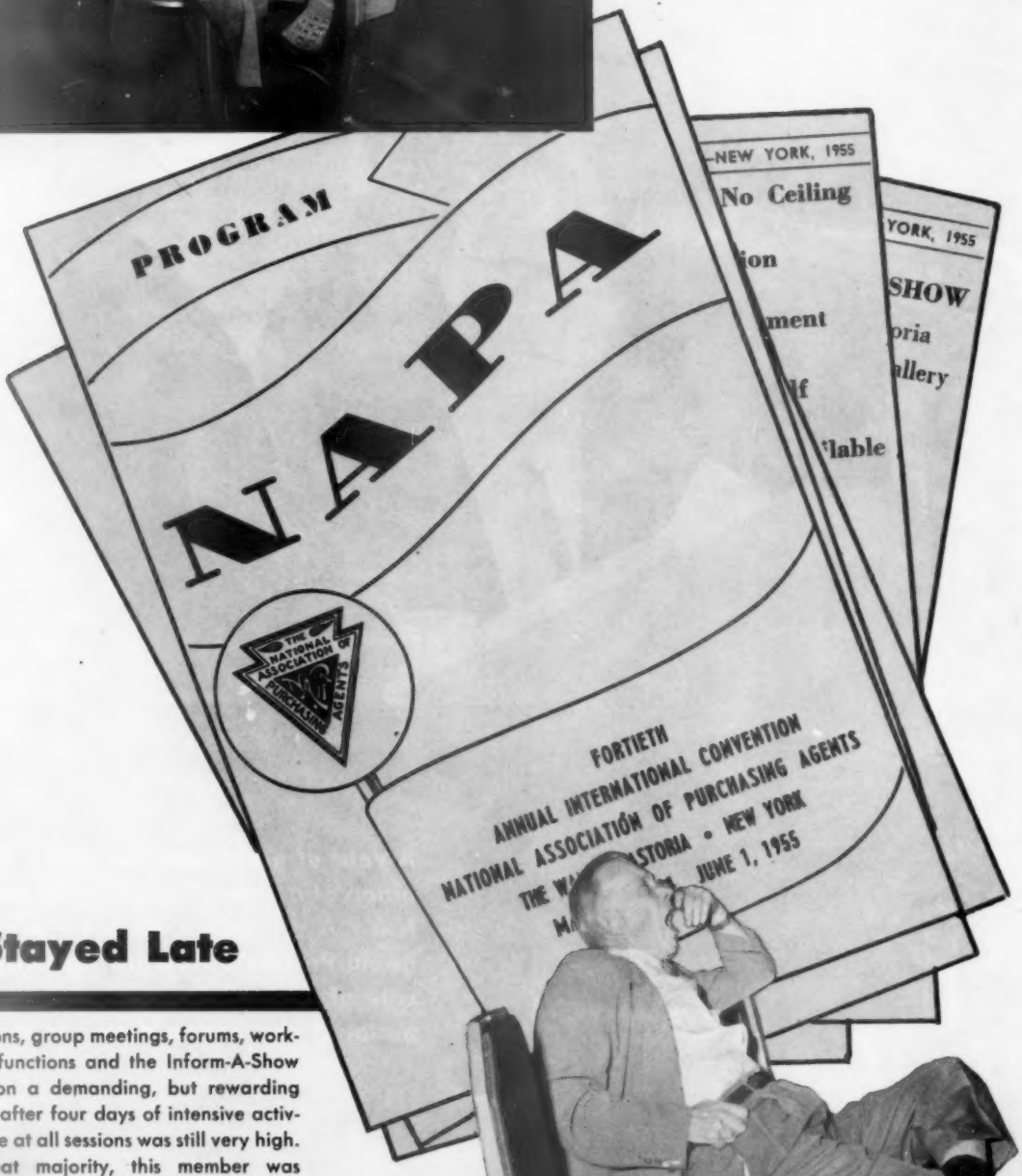
40th annual N. A. P. A. Convention

NEW YORK, MAY 29, 30, 31—JUNE 1, 1955

A year of great promise opens with recognition of a year of exceptional service. New N.A.P.A. President Al Soell presents outgoing President Howard Ahl with a certificate of appreciation as another successful national convention draws to a close.

They Came Early . . .

This year's convention program was a fact- and information-packed presentation based on the theme "Do It Yourself — With The Best Advice Available." To be sure of getting that advice, many purchasing agents, like this one, got the best seats available, long before individual sessions began.



And Stayed Late

General sessions, group meetings, forums, workshops, social functions and the Inform-A-Show kept visitors on a demanding, but rewarding schedule. But after four days of intensive activity, attendance at all sessions was still very high. Like the great majority, this member was "weary, but well-informed."

ONCE AGAIN the New York Association played the role of friendly, helpful host. The fine work performed by the entire committee was exemplified by the highly productive efforts of Bill Old, left, Program Chairman, and Stan MacKenzie, General Chairman

PRESIDENT G. W. Howard Ahl: "Let us not be of that school which even doubts that expanded horizons lie before us."

VICE PRESIDENT Frank Whyte: "The sixteen local associations that make up District Eight, N.A.P.A., bid you all a hearty 'Welcome'"

WORTHINGTON Chairman H. C. Ramsey: "Good 'purchasemanship' ranks as one of the things that have helped make American industry great."

COLUMBIA UNIVERSITY'S Dr. Leo Wolman: "The tempo of the recovery this year is not faster than after other recessions."

BUSINESS SURVEY Chairman Chet Ogden: "May is the banner month in a year which has so far been a banner year . . . business is good."

JOURNAL OF COMMERCE Editor Heinz Luedicke: "No economy — free or controlled — can escape the need for periodic adjustments."

CARRIER'S "Tony" Ruediger: "Our purchasing people have learned a new approach to buying problems through value analysis."

NEW EXECUTIVE COMMITTEE for 1955-1956—Seated, from left: Arthur J. Melka (District 1) Hydraulic Dredging Co., Ltd., Oakland, Calif.; G. W. Howard Ahl (Past President) Philip Morris, Inc., New York, N. Y.; A. W. Soell (President) Gaylord Container Corp., St. Louis, Mo.; Wilson B. Wight (District 8) Bausch & Lomb Optical Co., Rochester, N. Y. Standing, from left: Roy Mills (District 6) The General Fireproofing Co., Youngstown, Ohio; R. H. Lawrence (District 2) Sherman Machine & Iron Works, Oklahoma City, Okla.; H. Stafford Kellam (District 9) Trumbull Components Dept., General Electric Co., Plainville, Conn.; Harold A. Berry (District 4) Ingersoll Kalamazoo Division, Borg-Warner Corp., Kalamazoo, Mich.; Walter Armstrong (District 3) American National Bank and Trust Co. of Chicago, Chicago, Ill.; G. W. Leep (District 7) Mississippi Products, Inc., Jackson, Miss.

The Old Order Changeth . . .

ORDERS, Orders—but no sales, were the lot of the old executive committee at the annual Hendricks Club dinner. With pants at a Harvard Business School level, the boys were kept running refreshments to their predecessors. Lower right, Don Coultrip's tray lists slightly to starboard on its first trip. Lower left, Bill James savors some of Henry Ruf's wares, while Lee Forker looks on. Left, A. L. Francis and Walter Joyce smilingly await tips that never came, while George Aljian gently heists the last glass from E. O. Haymond's tray.

Ben Newbery Joins Shipman Medalists

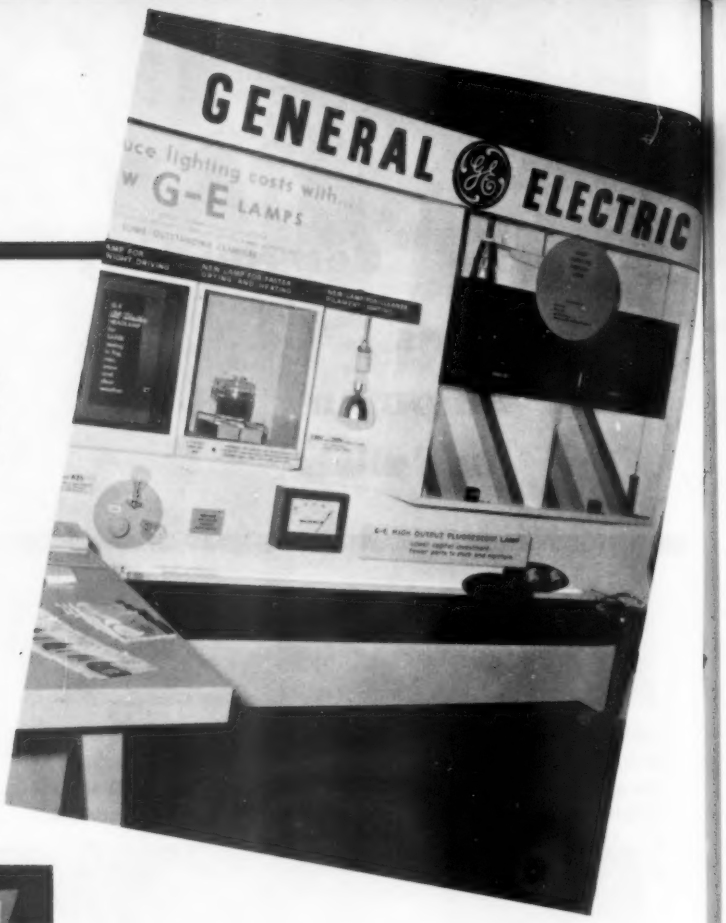
CAPPING a long and distinguished career in purchasing was the dramatic award of the J. Shipman Gold Medal to Ben R. Newbery, Lone Star Gas Company, Dallas, Texas. Ben is shown receiving the profession's highest honor from H. W. Christensen, chairman of the award committee.

PART of the distinguished company which Ben Newbery now joins is shown at the Shipman Medalists' annual luncheon. Standing, left to right, are Bob Swanton, George Aljian, "Buck" Weaver, and Stuart Heinritz. Seated are Howard Lewis, Russell Forbes, Tom Harris, and Roy Haberkern.

ANNUAL election transferred N.A.P.A. leadership from G. W. Howard Ahl (left), Philip Morris, Inc. to A. W. "Al" Soell, Director of Purchases, Gaylord Container Corp. The new president has been active in purchasing association affairs since joining the St. Louis local in 1940. Among the capacities he served in were president, national director and editor of the association bulletin. He was Vice President of District 3 in 1952-1953.

At The Inform-A-Show

AS ALWAYS, the Inform-A-Show provided a wealth of information on a wide variety of products and services for the visiting purchasing agents. Although small, the show was big in quality, as demonstrated by the prize winning booths shown here.



THE GENERAL ELECTRIC Company booth shared top honors as the "most informative."

THE ASSOCIATED Spring Corporation exhibit was one of the two judged "most informative."

HONORARY MENTION was given to the exhibit of the Ohio Injector Company.

PURCHASING Magazine's booth was a center of activity as visitors showed great interest in the special June "Cost Reduction Number" which came off the presses in time for the convention.

"The Best Advice Available . . ."

From top to bottom, at left: Editor Stuart Heinritz speaking at the Governmental, Educational and Institutional Buyers' Group meeting; a portion of the panel at the Chemical and Allied Products—Buyers' Group session on Tuesday morning; one section of the panel of experts at the non-ferrous metals forum.

MISS ANNE REPKO of Austenal Laboratories speaking at the Committee on Education meeting.

WORCESTER Pressed Steel's Carter Higgins speaking on "make or buy". Tom English of Alcoa is at left.

THIS is only a part of the large turnout for the Standardization Workshop, which featured the new manual.

PAPER Committee Chairman Tom Corcoran advises a visitor to the forum.

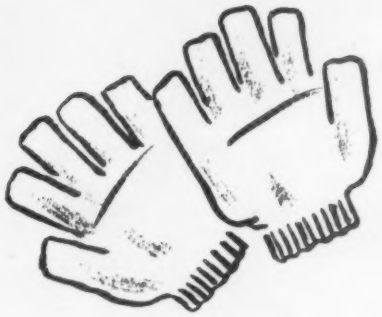
IRENE GORDON and Rhoda Stewart pause between sessions.

NEW YORK committeeman Dave Gibson helps out as ticket-taker.

LUCKY Austin O'Toole of Purchasing Magazine surrounded by (l. to r.) Frances R. Nusbaum, Helen L. Schofield, Estelle Ryan, Marie M. Smith, Mary M. Quien, and Anne D. Repko.

LARGE and attentive crowds were present at all general sessions.

Getting the most for your work-glove-dollar



WORK GLOVES

. . . an investment in plant safety

. . . an opportunity for cost saving

By Howard E. Eldrige, Jomac, Inc., Philadelphia, Pa.

WHEN the nation's labor force expanded rapidly during World War II, increasing numbers of employers began furnishing work gloves to their employees at cost, part-cost, or free. This trend toward company underwriting part or all of the cost has continued since the war. In a company of any considerable size, it mounts into a major production overhead item as well as a purchasing problem. It raises the question, "How can I get the most value and return out of my work-glove dollar"?

This discussion is concerned primarily with cotton fabric gloves, which are by far the largest class of work gloves used in industry.

Gloves and Safety

Experience proves that free work gloves may actually save more than

First consideration in the selection of work gloves is suitability for the particular job — protection in handling sharp edges, oily surfaces, hot parts; heavy enough to give good wearing properties, and light enough to provide necessary touch sensibility and efficient work handling.

their cost by reducing lost time due to hand accidents.

A survey made by Jomac last fall revealed that industrial plants which supply free work gloves to employees have only about half as many accidents as plants which do not supply them free. Let me hasten to qualify that bare statistic, which might otherwise be misleading. The simple act of supplying the gloves free did not result in such a record. Other elements inherent in the program must also be given full credit.

We found, for instance, that firms having the most complete and effective safety programs tended to be those that supplied free work gloves. Also, management was able to make sure that the men used the best glove for the fullest protection at their jobs. When men furnish their own gloves, they tend to buy on price, disregarding safety features necessary to the hazards of a specific job.

Reconditioning of work gloves has become a specialized industry of substantial proportions, contributing to longer glove life through re-use and cutting over-all glove expense by as much as 65%.

Full Protection

Further, when free gloves were furnished, men turned worn gloves in more promptly, so that they always had the full protection that was designed into the gloves.

The average first aid case involving hand or arm injury costs $2.44. Infected injuries average $39.94. It is obvious that prevention of only a few injuries can pay for a great many gloves.

Furnishing free work gloves gives the plant safety engineer better control over the type of glove used on a particular job, and in many cases increasing efficiency while guarding hand safety. Management can avoid both over-gloving and under-gloving, and, in general, can guide and encourage good glove habits more effectively than if the workmen are left to select and buy their own.

How much is saved by closer control of gloving? No dollars-and-cents figures are available, but considering the great amount of manual material handling in the average plant, despite the advances made in mechanization, any move to increase handling efficiency and lessen hand injuries cannot help but bring very tangible savings in operating costs.

Cost per Hour

Selecting the right glove for the job is one of the most important factors bearing on glove costs. The life expectancy of the glove outweighs all other considerations. The initial price tag bears little relation to actual ultimate cost. True glove costs should be measured in terms of cost per hour of glove wear.

For example, suppose you buy 10-ounce canvas gloves at 20¢ per pair and a light weight twisted loop pile fabric glove at 40¢ per pair. In almost any application, the loop pile fabric gloves can be expected to last four times as long as the canvas ones. Therefore, if the canvas gloves last ten hours on the job, you would need four pairs for a 40-hour week, costing 2¢ per hour or 80¢ per week. The loop pile fabric gloves, lasting 40 hours, would cost 1¢ per hour or 40¢ per week. Instead of costing twice as much as canvas gloves (measured by price alone), the loop pile fabric gloves actually cost only one-half as much in terms of glove wear.

Safer Handling

And we must consider the type of protection given during these work hours. This same loop pile fabric has a non-glazing surface which permits safer handling of lubricated metal sheets or products and has built-in insulation against heat. How much does it cost when a workman drops a heavy object on his foot or on another person when it slips because of an oily surface or when it is too hot to handle? That will vary according to the severity of the accident, but whatever it is, the selection of proper work gloves will go far in preventing the cause of injuries. The saving may be an undetermined amount, but it is a real bonus.

Weight and Construction

Having selected the best fabric for a particular job, the next step is to select the correct fabric weight. The heavier fabric is more economical from the standpoint of long wear, but tends to reduce dexterity and handling efficiency, particularly when handling small, light objects. Generally, the final choice of glove weight is a compromise between the desire for a long wearing glove and the need for dexterity.

A simple rule-of-thumb for selection of glove weight is to pick the heaviest glove which will permit the necessary touch perceptibility for the material being handled.

The construction of the glove is of equal importance. Here the glove buyer can borrow a leaf from the notebook of the clothing buyer in a department store. One of the first things he looks for in evaluating merchandise is the type of stitching used in the seams. A strong seam means a glove that will hold together during the life of the fabric.

A glove that breaks down at the seams while the fabric is still in good condition is worse than wasteful; it is a safety hazard.

Actually, the fewer seams in a work glove, the better. Perhaps the greatest advantage of minimizing seams is the possibility it affords of using a reversible glove construction. Reversibility — the construction that permits a glove to be worn on either hand—practically doubles the life of a pair of gloves doubling the area exposed to greatest wear.

Prolonging Glove Life

Having selected the glove or mitt that will give the most wear with the required dexterity, the next problem is how to prolong the lifetime of the glove in actual use. One way is to wear hand guards over the gloves. Another is to clean and recondition gloves when they become dirty and worn.

Hand guards (which can be worn alone as well as over gloves) add to glove life and also give additional protection against sharp edges. The same principles governing the selection of gloves can be applied to the selection of hand guards. Is the material long wearing? Is it flexible enough to permit a firm grasp of the material handled? Is it reversible for longer wear?

A highly practical way to prolong glove life and reduce glove costs is to institute a glove reconditioning program. The savings are so great that an entire new industry has sprung up since World War II, devoted exclusively to reclaiming work gloves, repairing as well as cleaning them. The quantity of gloves reclaimed today is five times greater than in 1950.

Users of reconditioning services report savings ranging from 30% to 65% of their over-all glove expense. The average saving is close to 50% when proper procedures are used. In large plants, the saving can reach a very impressive figure. One large automobile manufacturer, for example, saved $279,162 in less than a year during a trial reconditioning period.

Glove reconditioners speak of "glove returns"—i.e., the percentage of gloves in a pickup which are returned to a customer in usable condition after cleaning and repairing. This can vary from 50% or less to as high as 85% or 90%, depending upon (1) the condition of the gloves when sent out for processing, and (2) the type of fabric.

It is obvious that the better the condition of the gloves, the better they will stand up under the cleaning process and the better will be the chance of patching them, when needed, for re-use.

Also, some glove fabrics withstand cleaning better than others, and therefore give higher returns when sent out for reconditioning For example, canvas gloves generally average about 50% returns and can be cleaned and reconditioned one or two times. At the higher figure, we can expect that 100 pairs of gloves can be worn for 175 use periods. The loop pile fabric gloves average about 80% returns and can usually be cleaned from three to six times. At the lower figure, 100 pairs of gloves can be expected to last for 295 use periods and possibly longer, which means that a much lower inventory can meet the same glove needs.

Glove Distribution

Still another saving can be made through measures to prevent glove pilferage. The simplest method is to keep the gloves under strict store room control and require each employee to turn in a worn pair before he can get a clean pair. If he has none to turn in, he can be charged for the cost of a new pair.

Some factories, however, keep their gloves at easily accessible stations throughout the plant so that workmen need take only a few steps to get a clean pair of gloves. Since such stations are usually unmanned, there is nothing to prevent employees from taking gloves for their own personel use. These companies estimate, however, that the convenience and the decreased time off-the-job for exchanging gloves more than offsets the small amount of loss in gloves.

Which method of distribution is most satisfactory depends upon the individual circumstances.

Systematic control of glove distribution to workers implements the safety and reconditioning programs, helps keep inventories at a practical minimum, and reduces pilferage.

Summary

Glove economy, then, resolves itself into selecting the glove that will wear longest on the job (while meeting the requirements of safety and touch perceptibility), then taking steps to get the most mileage out of them through reconditioning and, where practical having workers wear hand guards over them.

It is entirely possible for a company which has been supplying the cheapest possible gloves, with no attempt at reconditioning, to get 8 times more useful value by changing to a longer lasting fabric and adopting a plan of reconditioning. That means reducing glove cost by more than 85%. There are additional by-products in increased handling efficiency, greater safety, and improved employee morale—factors that may be intangible, but can easily equal or surpass the savings which can be estimated from the monthly glove bill.

DEVELOPING FLOW CHARTS with magnetic cartoons

By T. A. Dickinson

Key gadget in this chart technique is the small permanent magnet on the back of the disc, permitting it to be placed or moved at will on a steel blackboard.

BUYERS who get caught looking at cartoons during working hours are more likely to be commended than to be fired nowadays in the Material Department at the Convair Division of General Dynamics Corporation, San Diego, California.

Reason: Convair has started using "magnetic cartoons" in the preparation of flow charts of its departmental procedures.

This is no frivolous idea by any stretch of the imagination. It is the sound application of two basic and well tested techniques from the field of visual education—the psychological impact and quick comprehension of a pictorial image, and the mechanics of movable magnetic insets. Besides making flow charts easier to develop, it is saving hundreds of man-hours by enabling supervisors to demonstrate and procurement personnel able to grasp quickly and clearly the new procedures and changes which sometimes have to be put into effect on an overnight basis in the aircraft industry.

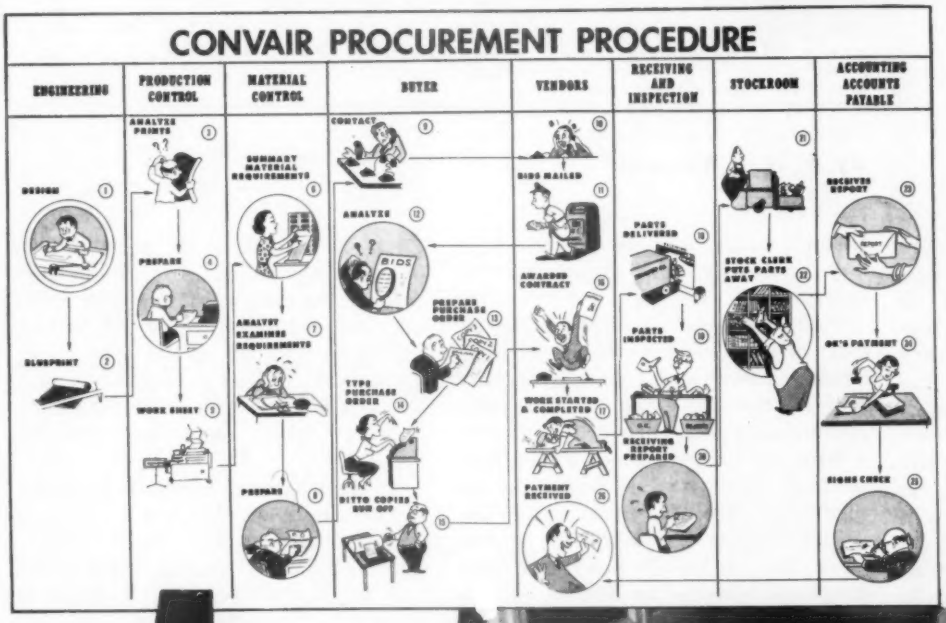
Taking a cue from the visual technique itself, it can best be explained by the illustrations.

The cartoons are mounted on lightweight cardboard discs. Their humorous nature makes them interesting to look at and also helps explain their significance. Each disc has a small Alnico permanent magnetic glued to its back. Thus they can readily be arranged—or rearranged—on a steel blackboard, in any desired position or grouping.

With this device, it is a simple matter to develop a chart progressively, step by step. It is especially useful where new procedures are evolved from suggestions made by two or more people, because it enables each person to show what he has in mind without offering the sort of explanations that may lead to misunderstanding, all suggestions are visually presented in relation to other steps in the procedure, and the most practicable solution is ar-

▲ B. P. Gibbons, Manager of Material, (at right) works out a procedural problem with Robert R. Sammon, originator of Convair's magnetic cartoon charts.

F. J. Parker, Material Supervisor, uses the chart to explain a change in procedure to his staff. ▶



When the procedure has been worked out on the chart board with magnetic cartoons and approved, the layout is photographed in the form of a pictorial flow chart.

Final step: Approved flow charts, photographed from the magnetic chart, are incorporated in the department's operational manuals as a guide to standard procedure. ▼

rived at by rearranging these symbolic elements of the problem on the board.

When a new procedure is completed and approved, chalk lines are drawn on the blackboard to indicate the relationship of the cardboard diagrams. Then a photographic reproduction of the board layout is prepared and becomes a part of Convair's procurement manual.

Always in good taste

Purchasing to Assure Uniform Flavor and Quality

Charles Leister
Vice President and Director of Purchases
The Nestle Company, Inc.

Fabian Bachrach

Nestle Company purchasing department meets difficult and exacting procurement problem with a threefold program:

. . . adherence to sound buying policies
. . . dealing with suppliers of integrity
. . . laboratory test and control techniques

By A. Wyn Williams

SINCE the famous Boston Tea Party, nearly two centuries ago, destined the United States to be a coffee drinking nation, there was always one familiar object on every American breakfast table — the family coffee pot. But, no longer. After 1939, this once regular emblem of the American way of life began disappearing. By today, in less than half a generation, this old domestic symbol has vanished from more than a fourth of American homes. The doom of the family coffee pot began in 1939 when the first modern instant coffee was introduced by the Nestle Company, Inc.

This minor revolution in the nation's habits is now paralleled by other "instant" products being constantly developed by Nestle's as well as other beverage and food products companies. (One of the latest examples of these is "instant tea" which bids fair to send the rather messy tea bag along the vanishing trail of the family coffee pot.) The rapid mass acceptance of these products is due primarily to two factors, in the second of which the purchasing department plays a vital part.

The first factor is that any housewife can prepare them for the family with a minimum of ease and without any culinary background. Instant coffee can be prepared by any housewife who knows how to boil water.

More importantly, the housewife can guarantee the same familiar aroma, flavor and strength on any one of the 365 days of the year. Achieving unvarying uniformity is a *must* for acceptance of a beverage or food product that relies for its profitable sale on satisfying the critical tastes of millions. If the basic raw materials have not been properly bought, no degree of expert processing can insure a uniform quality finished product.

That is why the purchasing program of Nestle's is a study in quality controlled buying in the case of the raw materials that enter into the manufacture of its instant coffee as well as in the case of its numerous other products—instant tea, evaporated milk, chocolate bars, bouillon cubes, seasonings, gravies, etc.

In such a procurement program, Nestle's believes that the laboratory can function as a coequal partner with enlightened purchasing policies and suppliers having high codes of integrity. Therefore, the company maintains at its purchasing offices test laboratories modernly and sci-

No scientific instrument has yet been devised to match the sensitive and educated human palate, where flavor is concerned.

entifically equipped and manned by some of the world's most expert and exacting technicians in their particular lines. The various plants also have their own test laboratories which supplement the quality control of raw materials in so far as it applies to various products processed at the particular plant.

The emphasis the company lays on laboratory quality control of raw materials purchased is based on the fact that the saleability of its product depends to a large extent on one of the most intangible and yet most exacting of criteria, the human taste. Before any of its products are put on the market, the company will have gone to great pains and expense in developing ones that exhaustive tests show to be acceptable to a vast common denominator of human tastes. Once such an acceptable product has been developed, there must be no variation in the quality, taste, aroma or flavor, to induce mistrust in this costly taste-cultivated mass market that it is not getting its accustomed top quality product.

The laboratory tests have another purchasing function. They are unhesitatingly accepted by Nestle's suppliers as confirmation or otherwise that the raw material commodities supplied are of the grade and quality ordered.

Equally important in Nestle's quality control program are the individual test roasters in the purchasing laboratory and the well regulated equipment used in the processing departments.

Buying in World Markets

Before describing some of the laboratory procedures followed, it might be instructive to examine the over-all purchasing policies of the company.

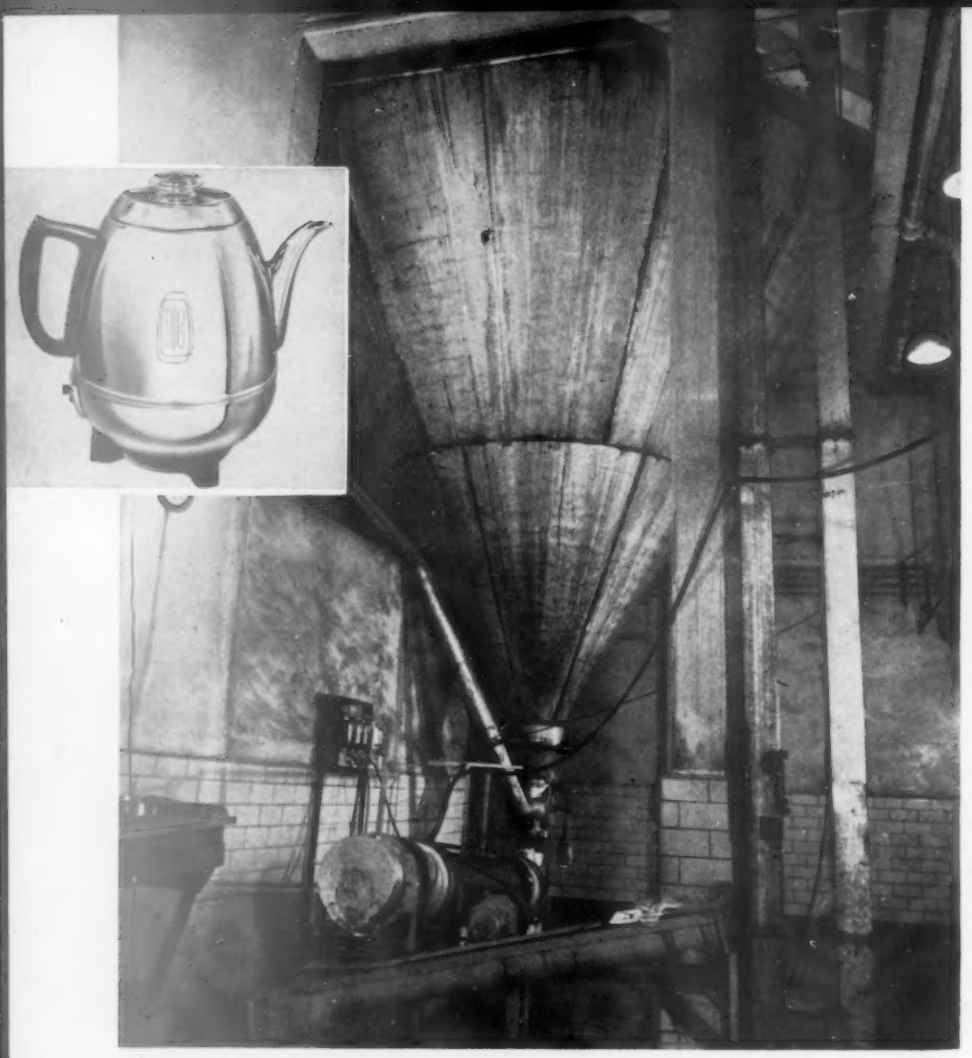
As one of the larger American business entities, with eleven plants located in nine states, procurement at Nestle's is a massive operation. While the purchase of raw materials for processing into foodstuffs is the most intricate operation, procurement covers a whole range of products from gargantuan equipment like coffee percolators that are three stories high to delicate laboratory balances that can almost weigh a flick of thought.

Different from many companies with scattered plants, where the trend is for the greatest degree of decentralization, Nestle's adheres to a policy of close-knit centralized buying. This can be expected inasmuch as many of the raw materials purchased from abroad and expert specialized knowledge is needed to deal with various problems. Thus, coffee is produced in a dozen different countries: Brazil, Columbia, Mexico, Salvador, Santo Domingo, and many others. Similarly, tea grows in a variety of areas in the Far East. Meat extracts that the company buys as raw material for its bouillon cubes, gravy essences, etc., are bought through jobbers from big packers—not domestic packers located at Chicago or Omaha, where supplies and prices respond to the familiar and relatively uncomplicated forces of our economic system, but those in distant countries like Australia, Argentina, Brazil, or Uruguay.

Each of these foreign countries has its own particular agricultural or political conditions which may at any given time have a profound influence on prices and supplies of the raw food materials which they provide. Thus, at the beginning of 1954, the report of extensive damage to the coffee trees in Brazil brought about a squeeze in the coffee market which sent prices stratosphering. Various government controls operate in many foreign countries. They are sometimes manipulated for political or other considerations that have no relation to ordinary free enterprise economics, based on the laws of supply and demand as we know them in the U.S. Price fluctuations can take place with mercurial swiftness.

It can be thus seen that purchasing raw materials for Nestle's is a specialist's operation, because so many of the sources of supply are in foreign countries. It is one that needs constant watchfulness by experts with facilities at their disposal centrally that would not be at their command if the buying were done locally at the various plants. These experts have not only to be familiar with current prices and stocks of commodities in world markets, but they also must be able to evaluate factors which may drastically affect them in the future, and to anticipate their influence.

In this connection, it is noteworthy that in the hectic conditions in world coffee markets at the beginning of 1954, which saw ground coffee in a twelve-month period advance over 40% in price, the price of Nescafe instant coffee advanced less than 15% net. Well-planned corrective measures by the purchasing department as a result of first hand knowledge of conditions in the coffee growing countries played their part in protecting the consumers from runaway prices. Thus, the purchasing



The once-familiar breakfast table percolator is giving way to mammoth 3-story percolators and dryers that make it possible to bring coffee of uniform quality to the consumer in "instant" form.

people at Nestle's, besides being sound merchandisers, have also to be almost top-notch political and economic experts.

Reliance on Proved Suppliers

Equally important in the philosophy of Nestle's purchasing department is a fundamental principle applied to the selection of its suppliers. It bases its operation on their integrity. The firm prefers to buy everything from coffee beans to paper clips or tin plate from suppliers with whom it has had long experience. Often, in order to take advantage of discounts for immediate payment, Nestle's will pay for a shipment of merchandise before it reaches one of the dozen plants for which it is intended. However, such is the established integrity of its suppliers that Nestle's knows that, should the shipment later be found faulty in any manner, the supplier will unhesitatingly make good.

Nestle's over-all purchasing decisions on a policy level are made at the company's executive offices in White Plains, N.Y. The special nature of certain commodities, however, requires the maintenance of a purchasing office in New York City, close to the markets for these products. At the New York office purchases of coffee, sugar and tinplate are under the direction of Vice President Charles Leister, Cocoa buying is done by W. P. B. Wregg.

In addition to the New York Purchasing office there is at White Plains, N.Y., a suburb of New York City, an office directed by Assistant Purchasing Agent James C. Sindt, in which machinery, parts and miscellaneous equipment of every description, including office supplies, are bought.

In view of the current trend of the executive offices of many businesses to migrate to the suburbs to by-pass the congestion and overcrowding which is part of city life, it might be interesting to find how a migration to a suburban location is viewed as affecting the purchasing functions of Nestle's. Its procurement problems are analogous to those of any large company. Nestle's purchasing department believes that the move has conduced to a better operation.

Since opening its White Plains purchasing office some three years ago, the company finds that it is called upon by more salesmen than it was when located in New York City. It believes that, being off the beaten track, it is more of an outstanding sales target. The salesman, on his part, is less hurried in telling his story, enabling the purchasing department to make a better assessment of what is being offered.

It is a policy of Nestle's purchasing department to see all the salesmen that time permits. But it is facts that are analyzed by the purchasing department, and not sales talk. It lays extra stress on the character of the supplier that the salesman represents, and his integrity. Often, Nestle's will pay a price differential fractionally higher for this intangible. It has learned that a supplier standing solidly behind his product is more economical to deal with in the long run than one who might sell at a lower price but not fulfill specifications. Nestle's insists that all firms sink or swim by their original quotation. It will not permit the revision of a bid downward. Such a practice, Nestle's believes, results ultimately in a cheapening of a product or the service—or both.

Once a supplier has been found who furnishes a satisfactory item, it is not often that a substitution will take place. Plant managers and superintendents become accustomed to a given item furnished by the same supplier. Even though the same type item, supplied from a competing source, may be just as serviceable, it will not appear so to the user who has become accustomed to rely on a particular source of supply. This psychological quirk, the purchasing department of Nestle's freely admits, is as much entitled to play its part in large scale industrial purchases as in individual consumer buying.

The suppliers of the raw material commodities that Nestle's buys know the importance of high and uniform quality to Nestle's continued successful operations. They, therefore, appreciate the need of scientific quality control. They recognize the part the laboratory plays as a partner with themselves and the purchasing department in a sound procurement function. They, therefore, unhesitatingly accept its

findings in the very rare occasions that grade and quality of their supplies are found not to be up to specifications.

Testing Procedures

There is no space to describe in detail all the many activities of the laboratories that assist the work of the purchasing department. As an illustration it will suffice to describe procedures with two types of products which the company packages——coffee and soups.

In the case of coffee, the laboratory goes into action immediately the purchasing department is advised of the arrival in New York Harbor of a consignment of coffee beans, in which Nestle's is interested. Official samplers, who are independent of the suppliers and Nestle's, and not the paid employees of either, dip what looks like long tubes into random coffee bags in the consignment. In this manner a cross section representation of the beans in the bags is extracted. The samplers then send these, with identification of the bags from which they have come, to Nestle's purchasing department in New York city for laboratory tests.

Inasmuch as the excellence of coffee depends on its appeal to the human taste, the machinery for its testing must so conform. No mechanical device has so far been invented to gage the excellence of aroma, taste or flavor which determine the excellence of coffee. Only the human senses can do this. Therefore, the high priced scientific instruments that test coffee qualities at Nestle's are the human senses of some of the world's most expert coffee tasters.

These experts examine the coffee beans visually for color-quality, and tactually for firmness. Then they roast a specified quantity, grind and carefully weigh it. It is then brewed and laboriously tasted to see if, when properly blended, it will have the proper body, flavor, aroma and taste to which a discriminating mass market has become accustomed. If it passes all these laboratory tests, it is then sent to the particular plant by which it was requisitioned.

At this plant, the same procedure goes on in the plant's laboratory as the purchasing office in New York. A wasteful duplication of effort, you may say, Not where coffee is concerned. Coffee is flirtatious where odors and aroma is concerned and picks them up willy-nilly. The plant, before it proceeds to process the coffee, wants to make sure that it has not picked up an aroma in transit from some previous consignment carried by the freight car or truck conveying the coffee to the plant from New York. Procedures in the quality control of purchases of cocoa and tea are somewhat similar, and depend on the judgment of the human senses.

In the plant at New Milford, where soups, gravies, etc., are produced, the problem of purchase is similar to that of coffee, and the functions of the laboratory the same. Uniformity for a mass market taste must be safeguarded, often in the face of changing basic raw material ingredients. However, mechanical equipment is able to play a bigger part at the New Milford laboratory than in the quality control of coffee.

At New Milford, the hydrolysis of vegetable proteins is important in the manufacturing process. These proteins can be obtained from a number of vegetable plants. At some seasons, a raw vegetable or its by-product may be short in supply and high in price; at other times, plentiful and low priced. Purchasing of the sources of vegetable proteins must, therefore, be done to provide the same high quality product with the same uniform taste, though from different vegetable protein sources. Exhaustive laboratory tests enable the purchasing department to purchase the lower priced and more plentiful vegetable material in each season while insuring for the consumer high and uniform quality in the soups or other products that the plant packages.

As a company which has been eminently successful in making food products, whose saleability in a mass market not only necessitates top quality but also unvarying uniformity of quality, Nestle's relies on a well functioning trinity—a purchasing department with sound procurement policies; long tested suppliers of the highest intergrity; efficient laboratory quality control techniques.

Before these bags of coffee beans were accepted, they were sampled at random and tested in the purchasing laboratory.

The P. A. as Publisher

By John F. Gustafson, Purchasing Agent
Farm Supply Division, McMillen Feed Mills
Fort Wayne, Indiana

A departmental publication is a leadership tool that can be the means of building team spirit, and providing education, direction and motivation for greater efficiency in purchasing activities

YOU'RE heading up a purchasing department—large or small. Part of your responsibility, as administrator and as leader of the group, is to put across policies and objectives of departmental operation and to stimulate the workers, both individually and as a team, to carry out these purposes enthusiastically and effectively. Take an idea from the successful technique of printed communication. Why not use a departmental publication?

I'm not talking about an elaborate magazine with a four-color cover and expensive art work, printed on slick coated stock, and boasting a wide circulation. The examples shown here are single sheet mimeograph or ditto jobs. Some of them have a readership of only 30 people. But by putting them on a periodical publication basis, and by adopting and adapting some simple publication techniques, they have been the means of doing some things that an ordinary bulletin couldn't accomplish, and of doing other things a lot more effectively.

This is the fourth article in a series on the general theme of "Crossbreeding Ideas", showing how the techniques developed in other departments and other business activities can be applied to good effect in purchasing.

There is much to be learned from the other fellow's experience, even though his problems and objectives may seem to be far removed from our own. The man who is alert to these possibilities can often bring new vitality, new efficiency, and new accomplishment to his own task.

The basic importance of this approach is increasingly recognized by leaders in business and management. Clarence Randall, Board Chairman of Inland Steel Company and foreign economic consultant to President Eisenhower, emphasizes it in a recent statement (*Life*, April 4, 1955). He says: "Cross-fertilization of ideas is essential in any organization, both as a creative force and as a corrective."

The examples cited in these articles are a practical demonstration of this principle. They have all been successfully applied in the writer's own purchasing work.

A Leadership Tool

President Eisenhower recently defined leadership as "the ability to stimulate people to do what needs to be done and at the same time make them think it is what they want to do."

Another expert in the field of human relations, psychologist and business consultant Robert N. McMurry, writes in the *Harvard Business Review* (January-February 1954 issue): "Just as industry's greatest need is leadership, so industry's greatest problem is to meet this need."

The progressive executive, aware of this need and problem in industry, is receptive to any helpful method. The departmental publication, for a small cost, can make a valuable contribution as a leadership tool.

In his study of "Leadership Identification and Acceptance" (in *Groups, Leadership and Men*, edited by Harold Guetzkow, Carnegie Press, Pittsburgh, 1951) Fillmore H. Sanford found eight categories of needs which a leader should fulfill for a follower. A departmental publication can help fulfill three of these:

1. Ego support, partly in the form of personal recognition and status.
2. Individual attention in the form of praise, approbation, and concern for him as a person.
3. Support of the group, or "a sense of belonging".

For example, Figure 1—a ditto sheet with a circulation of just eight distant warehouses and a readership of about 30, is a step toward satisfying these three needs. Ego support and individual attention are satisfied by pictures of two men and their warehouses, and the names of seven of the warehouse men and their wives and children. Group support is furthered by the mention of other warehouse men as part of the "family". Besides, the publication itself, with its specialized content and distribution to the group, implies a closely knit "family group", identifying both the reader and the persons mentioned as part of the whole.

A more obvious leadership device, again enhanced by the publication form, is shown in Figure 2, where the presentation of such competitive information as sales, inventory, or turnover comparisons, stimulates a strong desire to be on top.

Motivation and Direction

To be effective, the departmental publication must have two definite aims: to motivate and to direct. These guides to content are both necessary, for leadership seeks to effect motivated direction and directed motivation. Too often they

are considered separately, without regard to their necessary relationship. Motivation without direction recalls the old remark that "He who travels in circles qualifies only for the title of *Wheel.*" And direction motivation is like pointing out the enticing speed lanes of the Pennsylvania Turnpike to a turtle who is interested only in crawling over to the other side.

These dual aims may be defined another way by saying that there are two ways to lead: through the mind (direction) and through the emotions (motivation). These two important ingredients of leadership seem so obvious that it is difficult to understand why they are not more often put to work. Perhaps it is explained to some extent by the fact that the leader himself must also use his own mind and emotions in the process. To direct is to think through a plan—a difficult task. To motivate is to become involved in one's own motivations—a circumstance which may bring in enervating biases and insecurities.

The examples noted in the previous section, and illustrated by Figures 1 and 2, are examples of motivated direction, or stimulus. A departmental publication can also function effectively as a leader-tool in the area of directed motivation, by giving detailed interpretations of general policies.

For example, here is a general inventory policy:

Entire inventory should be turned at least four times a year. For merchandise that sells the year round (tires, appliances, small tools, bolts, etc.) a 30-day supply is the goal. Highly seasonal merchandise (grain bins, corn cribs, power mowers, etc.) should be adequately stocked—perhaps 60% of anticipated sales—before the season.

Figure 3, a mimeographed sheet, shows how additional information can help interpret the policy and lead to the type of action desired. The sales survey form and post card notification accompanying this communication are a part of standard procedure. The chances of getting careful estimates and prompt returns are considerably increased by tying in the procedure with this "publication", thereby helping substantially in accomplishing the purpose of realistic pre-stocking of mowers in accordance with stated policy.

An Educational Medium

In addition to being a leadership tool, the departmental publication can be of educational value, both as a disseminator of information and as a stimulator of thought.

The manner in which it can be used for the exchange of ideas is obvious. Efficiency demands that if a common problem is solved at one point, the solution should be given to other points as soon and as completely as possible. The "Cost Reducer" sheet in Figure 4 is a good example of how the publication technique is adapted to this purpose.

Even before the actual publication, for the education of others, it also served as a medium for self-education. In order to articulate his general conclusions for this presentation, the warehouse manager first had to think them through. His insight, brought about by this effort helped to educate himself first, and then to educate his colleagues as well.

Print With A Mission

The story behind the creation of "Cost Reducer" (Figure 4) is a good illustration of how and where a departmental publication can be used to good effect. The controller called in department heads for a cost reduction meeting. The general policy was stated and discussed. At the conclusion of the meeting, his parting words were: "You get the general idea. Now it's up to you. Please go back and have your people cut expenses wherever possible."

Figure 1. Leadership cultivates human relations.

THE DISSEMINATOR

BOOK I CHAPTER II PAGE 36

DAWN OF THE NEW FISCAL YEAR

And so we begin another year.
The Disseminator takes note of the event by turning over a new leaf and arriving at Chapter II.

Chapter I was entitled "Garden Spot of America" after the Decatur showplace of the same name, by Kipfer, Becker, Gressley and Vogelbaum. We will let Chuck and Mike title Chapter II.

ABOUT THE BOYS AT SAGINAW:

Chuck Workinger has fathered the Saginaw warehouse since its birth in July 1951. He nurtured it from a $12,000 year in 1951 to its current rate of $175,000 sales per year.

Born in Fort Wayne, Indiana, Chuck and Neva and three handsome children (who are images of their mother), Gary Lee, Patricia Ann, Judith Kay, live happily in Saginaw.

The biggest of the feathers in Chuck's hat is the one he received for successfully taking the Saginaw warehouse from zero inventory and sales, setting up all the records and procedures, stocking it and then getting the whole thing moving off dead center. And here is the punch line - Chuck had only two weeks training at Decatur before doing all that.

CHUCK

Mike Wolfe is the other half of the Saginaw warehouse crew and like all Farm Supply warehousers, he is salesman, bookkeeper, trouble shooter, inventory supervisor, expeditor, telephone operator, invoicer, secretary, and you just name it. Mike and Shirley live near Saginaw.

P.S. Efficient Bud Heisel, Farm Supply warehouse manager at Alliance is an alumnus of Saginaw, taking his training under Professor Workinger from December 1951 to October 1953.

September 24, 1954

COST REDUCER

Figure 2. Leadership inspires competitive effort.

THE BLUE STREAK

HOTTEST THING ON WHEELS -- PAT'S LOYLINER "88" (Madison) AS THEY COME AROUND THE FAR TURN, MADISON HAS A SUBSTANTIAL LEAD. However, Hugo's Hotshot is gaining on the outside and Carl's Blue Plate Special is coming up fast on the inside.

We are heading for a MAYMORIAL RECORD -- with a record speed of 300,000 in sight. LET'S GUN FOR A FAST LAST TWO LAPS!

P. S. Betting Cornish Kovats wants to announce that he will be available this weekend at the following address: 412 South Calhoun Street, Fort Wayne.

		Speed May 19	Speed Last Year
6	Pat's LOYLINER "88" (Madison)	$ 42,004	$ 26,060
1	Hugo's HOT ROD (Alliance)	32,231	25,642
2	Carl's BLUE PLATE SPECIAL (Decatur)	24,051	28,657
7	Cook's TOUR (Marion)	16,039	28,180
4	Miller's INDIAN (apolis)	12,525	11,849
9	Direct's SHIP	11,546	7,751
8	Chuck's WHIRLINGER (Saginaw)	9,705	—
5	McElfresh's MAXWELL (Louisville)	6,367	5,701
3	Marty Haver's STOCK CAR (Harrisburg)	4,176	4,941

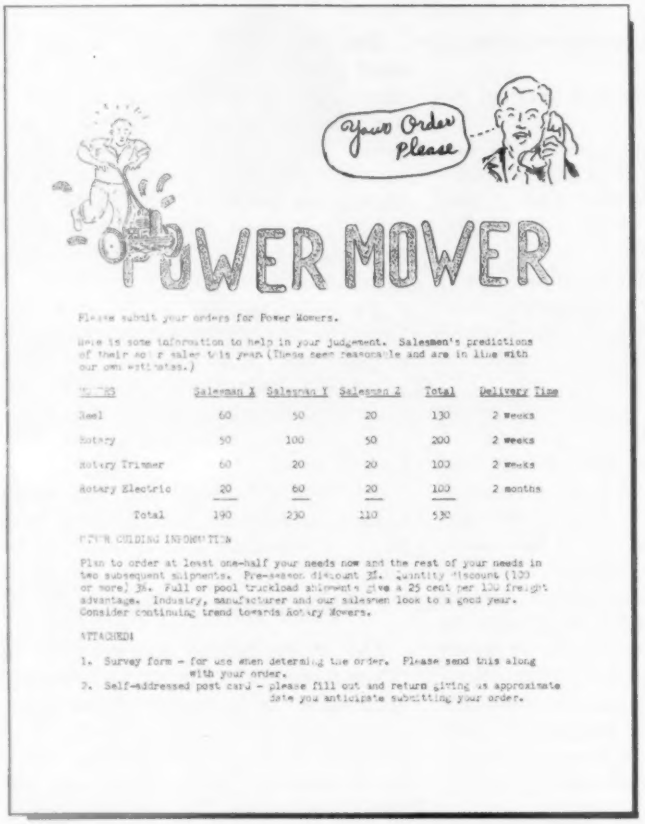

Your Order Please
POWER MOWER
Please submit your orders for Power Mowers.
Here is some information to help in your judgement. Salesmen's predictions of their sales this year (These seem reasonable and are in line with our own estimates.)
ITEMS Salesman X Salesman Y Salesman Z Total Delivery Time
Reel 60 50 20 130 2 weeks
Rotary 50 100 50 200 2 weeks
Rotary Trimmer 60 20 20 100 2 weeks
Rotary Electric 20 60 20 100 2 months
Total 190 230 110 530
OTHER GUIDING INFORMATION
Plan to order at least one-half your needs now and the rest of your needs in two subsequent shipments. Pre-season discount 2%. Quantity discount (100 or more) 3%. Full or pool truckload shipments give a 25 cent per 100 freight advantage. Industry, manufacturer and our salesmen look to a good year. Consider continuing trend towards Rotary Mowers.
ATTACHED:
1. Survey form - for use when determining the order. Please send this along with your order.
2. Self-addressed post card - please fill out and return giving us approximate date you anticipate submitting your order.

Figure 3. Leadership implements company policy.

COST REDUCTION or,
There is Always A Better Way To Do It.
SPOTLIGHT ON INVENTORY METHODS
By Bill Cook, Manager, Marion Warehouse
A warehouseman should periodically re-examine his methods and the tools that are the implements of those methods. The best way today is not always the best way tomorrow. The cheapest labor that you can buy is mechanical labor. A proper balance between mechanical and human labor will realize the most from money invested. Sometimes this review of methods will reveal obsolete equipment. In this case, disposition through appropriate channels is advisable. Here is an example:
Several years ago, we purchased a platform scale to accurately weigh parcel post shipments over the capacity of the small parcel post scale (25 lbs.). The platform scale was cheaper than buying a larger parcel post scale, and was more versatile.
Recently we noticed this scale hadn't been used for quite some time. Parcel post regulations had changed, lowering the maximum weight to 20 pounds in most cases, and increasing the rates so that it was often impractical to send larger parcels to the points still allowed. We had taken the new regulations into account, but had not realized the change it made in the "tools". As a result of our findings we cleaned up the scales and sold them, even making a small profit.
Here is a second example of why it is necessary to re-examine our methods. When we first started to handle Cardinal Jr. Elevators at the warehouse, the trough carton stacked up good and we would put eight in a stack with no trouble. The LML changed their model, increasing the trough depth. We noticed that now we could only stack the trough cartons six high. Recently, we had to figure on ways to conserve space, so we took a long look at our elevator stock. We found that the thicker trough carton would stand on end. The cartons are about 9 feet long, so one man could make a stack 9 feet high, just by standing the cartons on end. By the old methods, to get the same height it would take two men and two stepladders, plus the fact that it would take the same number to get one carton to fill an order.
The net result of the above re-examination of methods was a saving in space and manpower.
COST REDUCER
Note on the Editor: That handsome physiognomy in the upper right hand corner is Sir Willis ("Bill") Cook of Marion, Ohio. (Cost Accountant Cook as he was known as in them days.)

Figure 4. Leadership provides practical education.

This was a directive. It had only to be followed for desired results. But like every other good commandment it had to be translated by each department for use in a specific situation. That was a departmental responsibility.

One of the ways in which the purchasing department responded was to create the "Cost Reducer". The masthead boldly and simply set forth the underlying principle that embodies the basic attack on operating cost problems: "There is always a better way to do it." The little cartoon at the bottom of the sheet became a symbol of the purpose. Their appearance on each succeeding publication was a constant reminder to the reader, with ever increasing impact, and made the project into a campaign.

Frequency of issue and nature of the content vary with the situation. In this case, the subject was a broad one, and weekly issues were devoted to such phases as costs, inventory turnover and handling, ordering, housekeeping, and "suggestions to the editor".

Some of the very best cost reducing ideas were developed through this "suggestion" feature. These came from the man on the spot, who was encouraged to submit them both by financial rewards and by the publication of his picture and idea. The incentive value of this publicity should not be overlooked. The value of this type of employee participation is recognized in an article in the February 1955 issue of PURCHASING. Writing on "Ideas from Employees", the author begins his article:

"Progressive executives who are continuously searching for ideas to improve methods should keep their office door open to their employees, for the person close to the job may prove to be a valuable source of suggestions and new ideas."

Mechanical Details

A businessman's first question about the use of a new idea is, "How much will it cost?" This is a fair question, and an important question. Any such departmental publication as the "Cost Reducer" would become ridiculous if its cost exceeded that of the evil it was intended to correct. Fortunately, the outlay will not cause even a ripple in the budget, since most companies already have the necessary mechanical facilities.

Figure 2 ("The Blue Streak") and Figure 3 ("Your Order, Please") are mimeographed sheets with traced drawings. A stockpile of mastheads can be made up in advance, so that each issue is merely a typed or mimeographed page. The copy can be enlivened by using the abundance of material available for tracing—either that designed for the purpose, or company symbols, trademarks, cartoons, etc. Generally there is an expert doodler around the office who will help just for the fun of it.

Another inexpensive method of duplicating is the ditto process, used for the typed copy in Figures 1 and 4. The mastheads and pictures on each were done by offset, a process requiring a negative and an offset plate made from paste-up copy. To print a masthead such as the warehouse photo and words "The Disseminator" in Figure 1, the cost might be as low as $10 a thousand. Whether to spend another $5 to add pictures for a single issue when the circulation might be as low as 25 or 30 people would depend on their value in the particular circumstances. An electric typewriter with "giant" type was used in the heading for "Cost Reducer" in Figure 4, adding variety and emphasis to the finished page at no extra cost.

Dual Purpose Circulation

The primary purpose of publications such as these should be to increase internal efficiency. However, interdepartmental cooperation is

(*Please turn to page* 260)

Cost Reduction Clinics

Formal talks were held to the minimum required to outline objectives and set the stage for examination and analysis of the actual products and materials. Suppliers' interest was aroused.

Westinghouse buyers and engineers enlist the special knowledge and skills of suppliers in cost reduction and quality improvement by showing actual products and applications, design objectives and manufacturing problems

PROGRESS and profits result when purchasers and suppliers work together as a team. To work together you have to know each other, know the end product, know the objectives, policies, and problems involved. This is the key to product improvement, cost reduction, and sound business relationships. It is the philosophy underlying a series of "Suppliers' Day" conferences conducted by Westinghouse purchasing departments at the various plants.

Historically, much if not all of management's attention has been directed towards internal communications. Therefore, it was believed that meetings of this type would help bridge the open circuits in the lines of external communications. The response was excellent. At the Transformer Division, Sharon, Pa., 90 representatives of 53 Westinghouse suppliers were guests of the purchasing department on January 12. On April 6th, the East Pittsburgh Divisions (Switchgear, and Transportation and Generator) were host to 160 representatives from 80 supplier companies.

The program at the April meeting is typical. D. A. Riggs, Manager of Purchases, welcomed the guests in the Auditorium at 10 A.M. There were three brief talks, limited to 20 minutes each, which got right down to the specific objectives of the meeting.

S. J. Merriman, Assistant to Vice President, outlined the position of Westinghouse as a supplier to major industries and consumer markets and as a customer of the assembled suppliers. He told of the company's growth and the expansion program now under way. Projecting this in terms of output and purchases, this means that Westinghouse in 1957 will have an output capacity of $2.1 billion, and purchase requirements of more than $1 billion. The East Pittsburgh Divisions alone will be buying at the rate of $150 million annually.

IDEA SHEET

WESTINGHOUSE SUPPLIER DAY

April 6, 1955

In order that we may record for future follow-up with you the various ideas developed in visiting the shop display areas, please fill out the following:

1. What parts or assemblies do you now feel can be improved in cost and quality?

DISPLAY AREA (T&G or Swgr.)	PART NAME	STYLE and/or DRAWING NUMBER	PROPOSED CHANGE

2. In addition to those listed above, what other parts or assemblies do you feel may be potential areas for cost and quality improvement if subjected to further investigation by you and our engineers?

DISPLAY AREA (T&G or Swgr.)	PART NAME	STYLE and/or DRAWING NUMBER

3. Other Comments

Your Name_____

Your Company_____

Tangible suggestions and areas for further investigation were recorded by suppliers on these "Idea Sheets".

"No one is going to hand us this tremendous amount of business on a silver platter," he said. "We have competition. However, we are not afraid of competition. It's a necessary ingredient of our American way. We plan to meet competition with operating economies in our plant. We can do this in two ways.

"Labor is a big factor in the price of our product, but that is an internal problem. We can't ask your help on this. The second factor in our price is the material that goes into them, and that is where we turn to you.

"Westinghouse has done much to develop new materials, variations of old materials, and adaptations of old materials to new uses. Our company has long been a pioneer in the search for the new and better way. But we clearly recognize the fact that, in spite of our efforts, we cannot hope to match the work that you can do.

"It all boils down to this. You are the experts in your field. Our efforts are spread over the entire field of known material. You, who generally are concerned with only a limited field, are certainly in a far better position to evaluate the merits of new developments in your particular field.

"This, then, is our proposition. An investment of time and money by the company you represent can bring rich dividends in the opportunity to get a larger share of the millions we will spend annually for products and services. We are willing to be shown the better, the easier, or the less expensive way. If you can show us how to reduce our costs without sacrificing the quality of our product you are the one we want to do business with. If your suggested cost reduction involves a change in our design, we will make that change. Examine our specifications carefully. Are we spending more than we have to because we don't know of some new development in your field? Any lessening of unit cost on your part will be more than offset by increased volume in orders.

"This is, and will continue to be, our purchasing policy."

A. A. Johnson, Manager of Engineering for the Switchgear Division, and A. M. Harrison of the Transportation & Generator Division then outlined the specific objectives of their respective divisions in the search for lighter weight, better mechanical and electrical properties,

Getting down to cases in the factory area where parts were on display. Suppliers handled them, asked questions, considered them in the light of their own engineering ideas and manufacturing facilities.

G. A. Fadler (right), Manager of Purchases & Traffic, Transformer Division, and J. S. Kuney, Staff Supervisor, quarterback the Sharon conference from the sidelines.

standardization, and improvements in design, manufacturing and performance. Purchasing Agent C. W. Ellingson, Jr., summed up for the purchasing department.

At 11:20, the visitors were divided into two groups, each group spending the next hour and a half in one of two display areas that had been set up in the shops of the two divisions, where the actual products, components and sub-assemblies were set up for detailed examination. A full complement of Westinghouse purchasing and engineering personnel was on hand to answer and ask questions. This was the "meat" of the conference, where suppliers, designers, and purchasing people got down to specific cases where opportunities for cost reduction might exist. After an hour's break for lunch, the groups exchanged places and went to the other display area, so that each supplier saw the whole range of products and purchased parts for both divisions.

At 3:30, the entire group met again in the auditorium, where the object of the meeting was restated in the light of the display and demonstration of parts. The Works Industrial Engineer, W. E. Eargle, showed a dozen representative examples of cost saving changes that had been worked out within the company, illustrating the type of thinking and analysis that is being applied to the problem.

"Materials represent a major portion of our total product cost," he said, "and we plan to concentrate greater attention on this cost element. We believe that a good criterion for the use of materials would be somewhat as follows: The material best suited for the job is that which meets all the requirements of the job and is the lowest cost material with regard to purchasing and processing costs. We are anxious to have the best thinking of the hundreds of specialists in our suppliers' shops directed to our purchased materials and parts. Your invitation to participate in this meeting was not for the purpose of helping us reduce costs by asking you to shave your prices. We are convinced that a far better way is to get you better acquainted with our products so that you can suggest better applications of materials and the specialty or standard items which you produce and market.

"Since you know your own products and plant capabilities better than anyone else, as you become better acquainted with our products we believe the type of changes we have illustrated can be multiplied many times through your suggestions. If this approach can be multiplied and extended to a broader base, the result will be reflected in lower costs for us and better business for you—with no implication that your pricing policy be involved, or that we benefit from any disadvantage to you."

In a brief concluding summation, Purchasing Supervisor P. F. Dundon said: "You have seen today how we use the materials we purchase from you and from others. We hope you have learned enough so that you can help us answer a question that we must continually ask of both ourselves and our suppliers—'Are we using the materials we purchase to best advantage?'

"There is room for improvement in all things, and application of purchased materials is no exception. The next step is to get specific. Where are the improvement possibilities? We are asking each of you experts to point out to us the specific areas in which we can make a change for the better.

"Please don't get the idea that this is a one-way proposition. Quite the contrary. We plan on giving consideration to contributions of this type, right along with the other factors such as price, quality, delivery, etc., which influence our buying decisions. We very definitely want to encourage closer liaison between our respective Engineering Departments, through ourselves in Purchasing, and your people in Sales. Today you had an opportunity to meet many of our Engineering people and discuss the technical phases of our material usage at first hand. I'm sure there will be need for additional contact of this nature as ideas are developed further. It is very important that you work through our Buyers on all these matters so we will be able to give the proper recognition to your efforts in the buying decision."

He invited suppliers to fill out the "Idea Sheets" which had been distributed to them, noting specific suggestions for cost and quality improvements and potential areas for further improvement if subjected to further investigation, and expressed the hope that the immediate suggestions would be only the beginning of a continuing cooperative effort leading to mutual long range benefit.

D. A. Riggs (right), Manager of Purchases, East Pittsburgh, explains to a supplier exactly what the insulation in a commutator must withstand to do the job properly.

A new cost saving idea may be hatching here regarding the application of special terminal connectors on an inner cooled turbine generator.

HERE
is a problem that arises with every purchase you make

AND HERE
is the way one purchasing department is successfully correcting the situation

Packaging for Safe Arrival

By Alfred L. Lomax, Professor of Business Administration
University of Oregon

THE PROBLEM of adequate packing is faced daily by manufacturers, middlemen, and consumers. It arises out of the obligation of shippers of merchandise to put goods into the hands of consignees in as perfect condition as when they left the factory. Unfortunately when the principle is violated, the unhappy recipients swear—in both senses of the word—that there will be no repeat orders, and so ends a presumably pleasant and profitable business relationship, with bad feeling on both sides.

Purchasing agents have a right to expect delivery in sound condition, of the goods they order. Any inferior standard of acceptance is a travesty on their responsibility and a weakening influence in marketing relationships.

It is not only the purchasing agent's responsibility to protest against unsound packing practices. He has an obligation to suggest, even demand, the kind of packing which he knows from experience will protect his merchandise against mutilation in transit. No purchasing agent worthy of the name should sit passively and silently at his desk and accept carelessness in packing.

Too often, the carriers who "received the goods in apparent good order and condition" become the whipping boys for poor crating and boxing, when it actually is not their fault, but that of the shipper. This is not said to excuse transportation agencies for their own derelictions in handling and stowing, but when boxes are poorly designed and constructed of second and third rate materials, they can hardly be expected to withstand the rigors of handling, lifting, and stacking. The expansiveness of the American market, with its enormous transportation network of carriers and the inevitable breaks at transfer points, test to the fullest extent the strength and design of shipping containers.

Here in the Northwest, we have a good example of this problem. Most merchandise destined for Alaska comes by transcontinental rail for transshipment at either Portland or Seattle. Here the cargo must be unloaded from cars or trucks at the ocean terminal, then reloaded aboard ships—or sometimes stored in a warehouse while waiting for transfer. Then the time for removal to shipside comes; local truck movement is necessary, with more handling involved. If the final destination is Fairbanks, transfer to trucks is necessary at Valdez, or,

(*Please turn to page* 101)

Information on Proper Packing Practices

Consolidated Freight Classification and Exception Sheets, Consolidated Classification Committee, Chicago, Ill.

Official Express Classification and Supplements, Railway Express Agency, New York, N. Y.

National Motor Freight Classification and Supplement, Washington, D.C.

Transportation of Explosives and other Dangerous Articles by Freight, Bureau of Explosives, New York, N. Y.

United States Official Postal Guide, Superintendent of Documents, Washington, D.C.

Federal Standard Stock Catalog Specifications, Superintendent of Documents, Washington, D.C.

The Container and Packaging Industry Report, U.S. Department of Commerce, Washington, D.C.

Air Line Specifications, for each Air Line.

We Are Getting Fewer Damaged Shipments

By F. W. Wodrich, Purchasing Agent
Texas Instruments Incorporated
Dallas, Texas

TEXAS INSTRUMENTS Incorporated, Dallas, is keenly conscious of the importance of good packaging protection. As a producer of delicate technical equipment—complex geophysical instrumentation, specialized electronic devices, and precision optics, for example—the company has put a great deal of careful study on the subject of package materials and design, and TI has found, in its own experience, that good packaging pays.

TI looks for the same care and attention to adequate packaging on the part of its suppliers of purchased components. For skilled precision manufacturing and to maintain the high quality of end product that is absolutely essential in this field, components must be received in perfect condition. In many cases, the only alternative is to discard damaged parts as worthless junk.

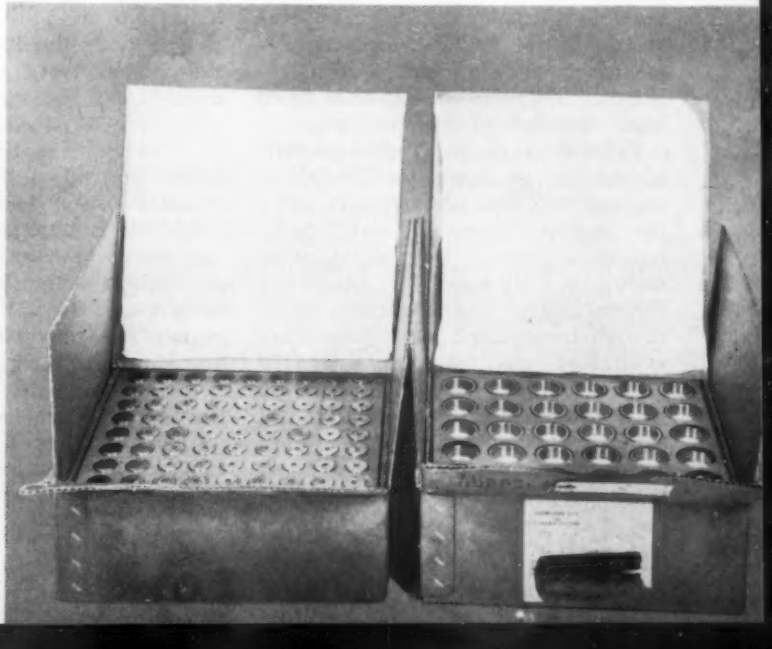
Most of the suppliers, accustomed to this type of business and aware of their responsibility, have a pretty good record. But some companies have never given packaging the attention it deserves, and even the best of them have to be reminded occasionally, to keep them "on their toes".

Recently, when the number of "damaged in shipment" reports from the receiving department began to rise, TI's purchasing people decided that something ought to be done about it. A large part of the trouble was directly traceable to inadequate packaging, and they knew from their own experience that this was something that could be corrected.

It was, they reasoned, logically a purchasing problem. It is purchasing's job to get materials and parts delivered in acceptable and usable condition. Every damaged or rejected shipment automatically raises a new purchase or replacement requirement, and may be the cause of serious and costly production delays. Purchasing has the contact with vendors, and has the business relationship to maintain. Adjustments and claims are always a nuisance—and an expensive nuisance. No matter who pays, everybody loses. There's a lot of unproductive effort involved, and good will is at stake—on both sides.

TI's approach has been a very constructive one. Instead of complaints and claims, they provide some sound practical education and the

"Wrong and right" methods of interior packaging. The loose shipment of parts is almost certain to result in "damaged in shipment" claims; good interior protection is equally certain to provide "safe arrival", and marks the careful shipper as a preferred source of supply.



Invitation to pilferage. When this flimsy container was shipped by parcel post, it contained 1200 parts. When received at Texas Instruments, only about 100 were still in the box. About 1000 more were delivered in a mail sack, apparently having been swept up by a conscientious postal clerk. More than 100 were lost forever.

offer of help in overcoming packaging difficulties.

In conjunction with the company's marketing division, a folder was prepared that boiled the problem—and its solution—down to basic factors, and was sent to all suppliers. It is called a "reminder". It reminds the supplier of two important facts:

1. It's a l-o-n-g way to Texas!
2. Good packaging doesn't cost . . . it pays!

The message starts by emphasizing the essential role of adequate packaging in making a satisfactory delivery: "You can spend thousands of dollars in designing the finest product ever . . . in hiring the most skilled craftsmen . . . in buying the best raw materials . . . and for precise tooling—but you'll deliver worthless junk if you pack it wrong!"

From here on, the story is told largely by pictures, the incontrovertible evidence of actual photographs taken in TI's receiving department as shipments were received. They illustrate the three basic elements of package design:

1. *Inside support.* A cardinal rule of interior packaging is "No shifting weight". Two photographs, using the familiar "wrong and right" technique, illustrate this point. One shows a shipment of capacitors thrown loosely into the cartons (even though honeycomb separators were available), that had traveled 1500 miles, bouncing against each other with unfortunate results. By way of contrast, there is a photograph of two cartons of comparable small parts properly and neatly packed, with a die-cut support to hold them individually in place and protect them from each other, and an extra liner for snug fit and cushioning against the shocks of transportation.

2. *Outside protection.* The rule on this point is "Expect rough handling . . . package accordingly!" A package may look good when it leaves the vendor's plant, but how does it look when it is received by the customer? Three photographs supply the answer, showing boxes that had been punctured or torn in transit, burst open at the seams or crushed at the corners, with partial loss of contents and varying degrees of damage to the remainder. The containers were simply too weak, too light to do the job required of them. In one case, the fragile contents of the carton were valued at more than $2,000, but the failure to provide adequate protection—at a cost of a few cents more—needlessly exposed the shipment to the danger of total loss.

3. *Cost.* Better packaging does not necessarily mean more expensive packaging; materials, time, and weight can be cut through proper design. The illustrations on this point are drawn from TI's own experience —"before and after" photographs of the method used in packing one of its own products. The original carton met the requirements of inside support and exterior strength. It carried the instrument safely. But the packaging engineers felt that it could be improved. When they got through with it, they had a stronger container and better protection at less cost for packing materials, packing time was cut in half, and shipping weight reduced by 38 pounds.

The conclusion of TI's message to its suppliers makes a lot of sense, and points the way to better shipping practices:

Get the benefits of improved packaging design.

It *can* save you money and *will* save you damage.

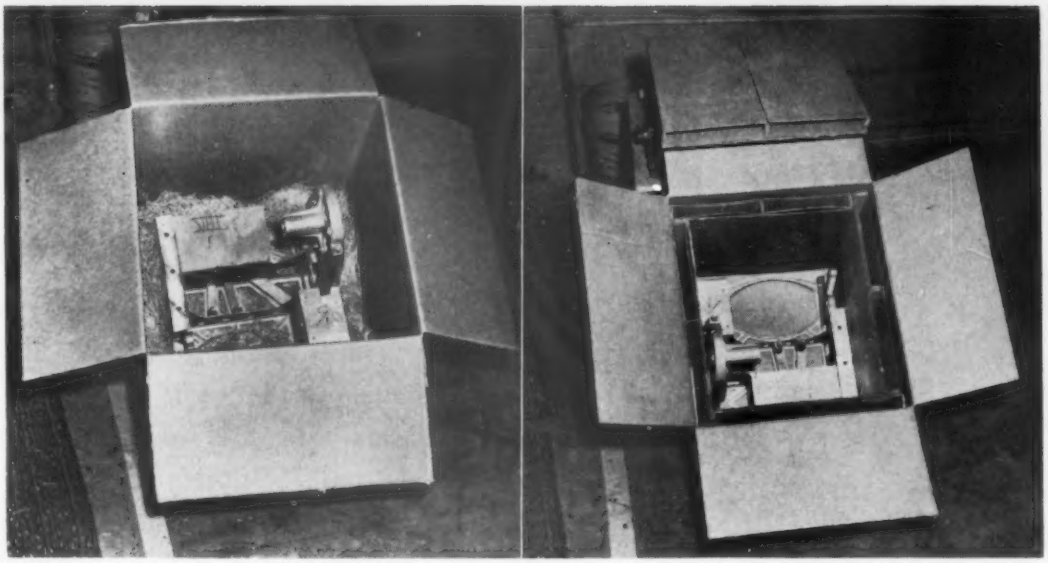
It increases your business, by making you a "preferred supplier".

So . . . design the package around the product . . . pack snugly inside, pack strongly outside . . . and consult with Texas Instruments packaging engineers when in doubt.

The results of this constructive educational reminder are already reflected in the receiving department, where fewer damaged shipments are being reported. Thus, by approaching the situation at a broad and basic level, with a specific and practical program, the company has at the same time solved one of its own purchasing problems, helped its suppliers, and fostered good will in its business relationships. Everybody benefits.

Package received at TI by parcel post, not insured. Three parts were missing, others damaged. There's evidence of rough handling, but the fact remains that the container itself should never have been used in the first place. It simply was not equal to the job.

Three electronic instruments worth $1,150 each were shipped by rail freight in these two boxes. The containers were just strong enough to "get by". Fortunately, damage was slight. A few more miles—a few more bumps—might well have spelled a different story.



Even safe packaging can be improved. This is one of TI's own products packed for shipment. The original package, in an oversize carton stuffed with excelsior padding, gave adequate protection, but when the packaging engineers tackled the problem, they developed a stronger, neater container, cut the cost of packing materials, reduced packing time by half, and eliminated 38 pounds of shipping weight.

continued Packaging for Safe Arrival

if via Anchorage, to trucks or the Alaska Railroad at Seward.

Frequently, final destination is a community on the Yukon River or one of its tributaries, in which case there is another transfer to a river boat for a journey several hundred miles into the north country. Obviously, the best possible packing is a prerequisite for the safe delivery of goods under these circumstances—an extreme example perhaps, but representative of an everyday occurrence in the marketing of American merchandise, at home and abroad.

A corollary to poor packing standards is the pilferage hazard. Split slats and sides attest to the rough treatment received by packages en route, and become an open invitation to dock and terminal workers to appropriate the exposed merchandise. Extensive studies by shippers' associations and insurance companies show positively that pilferage losses can be combatted effectively if consignees *demand* the use of strong containers, constructed to meet the needs of the articles being shipped and the risks of transportation.

Further protection is provided by strapping—double, if necessary—to protect a shipment. Even if it costs more, let's have "safe arrival" merchandise instead of the miserably mutilated stuff that can be seen in terminals all over the country. Otherwise, why ship? Adherence to sound packing engineering principles will relieve the manufacturer of complaints, the transport agencies from paying loss and damage claims, and the purchasing department from filing claims against both. It will eliminate one great source of waste and loss in distribution.

Large corporations, where packing has become a production line function, have spent much time and thousands of dollars in analyzing their individual problems related to this subject. The steel industry has issued a sizable booklet with printed diagrams and detailed instructions for packing every kind of steel goods manufactured. The ingenious two-truck packing case for knock-down shipments of the automobile industry is an outstanding example of progress made to deliver safely and compactly, and to reduce freight charges. The Hyster Company of Portland, and the Caterpillar Company at Peoria, because of the irregularities in the shapes of their lift trucks and tractors, have devised their own boxes to meet such problems as protruding cabs, track and front end assemblies.

Among the new developments to expedite the movement of goods between producer and consumer, and to protect against pilferage and other losses, is the use of huge aluminum vans the size of truck trailers. These are carried on a special chassis, and can be detached for shipping on flat cars, in ships' holds, or stowing in warehouses. Some are insulated, and thus offer temperature controls for classes of cargo where this is a factor for safe arrival. There is also rapidly expanding use of all-welded metal containers, smaller than the van type, among shippers of goods like cigarettes, liquor, automobile parts, etc., which are particularly susceptible to pilferage. Insurance rates have been correspondingly reduced where such containers are used.

Perhaps the ideal of "safe arrival" will be attained when consignees, shippers, and carriers insist that outside containers meet the standard tests imposed by some container manufacturers for rough handling, distortion, corner shock, side and end impact, bumping and vibration in railroad cars. Such knowledge would be reassuring to manufacturers and purchasers alike, both of whom strive for delivery of merchandise in sound condition.

There are several authoritative sources of information which can be consulted for specific recommendations on proper packing for all manner of goods. Some of them are listed in the table herewith.

The purchasing agent's function and responsibility do not end when he has ordered goods for his principal. He must share responsibility with his suppliers and the carriers in promoting the safe arrival of merchandise.

Simplified Procedures Explained by F. T. C.

It's easier for business to deal with the Federal Trade Commission and to stay within the rules, now that they have been revised in language you can understand, spelling out what you may do as well as what you may not

By LUCY EDDINGER

FEDERAL Trade Commission has unveiled another of the Administration "new looks" at business with the issuance of a series of simplified practice procedures that are aimed at unraveling the red tape of Government regulation.

For the purchasing agent with a variety of points of contact with the Federal Trade Commission, the simplification of rules and procedures represents savings of time and an easier understanding of both the procedure and purpose of the Government's action under the laws which the Federal Trade Commission administers.

These laws are varied and take in a broad segment of industry relations and trade practices.

The laws briefly are:

The Federal Trade Commission Act of 1914, as amended by the Wheeler-Lea Act of 1938 and the Oleomargarine Act of 1950;

The Clayton Act of 1914, as amended by the Robinson-Patman Act of 1936 and the Anti-Merger Act of 1950;

The Webb-Pomerene Export Trade Act of 1918; the Wool Products Labeling Act of 1939;

Public Law 15 of 1945 relating to the regulation of the business of Insurance;

The Lanham Trade Mark Act of 1946;

The Fur Products Labeling Act of 1951; and

The Flammable Fabrics Act of 1953.

This revamping of FTC's 'Rules of Practice and Procedure" is in line with the new policy stated recently by Chairman Edward F. Howrey: "It is important that the business world know what it may do, as well as what it may not do." The new 29-page booklet is a simplified version of the rules which cuts through the tangled web of legal jargon and makes it easier for the businessman to understand what goes on at the Commission.

Many of the recommendations made by the President's Conference for Government Practices were incorporated into the present guidebook.

There is a separate statement of organization and a chart which outlines the staff functions of the agency. This is a handy reference which tells the businessman exactly what division performs each function within the Commission. It outlines some services on the positive side—not so well known as those of the Commission's enforcement arm. They include:

The Bureau of Consultation—a new section created less than a year ago. This Bureau works with industry to assure fair interpretation of the laws administered by the FTC. Officials say this section has been snowed under with a constant stream of letters from businessmen asking for advice.

The Small Business Division—provides advice and guidance for small business.

General Procedures

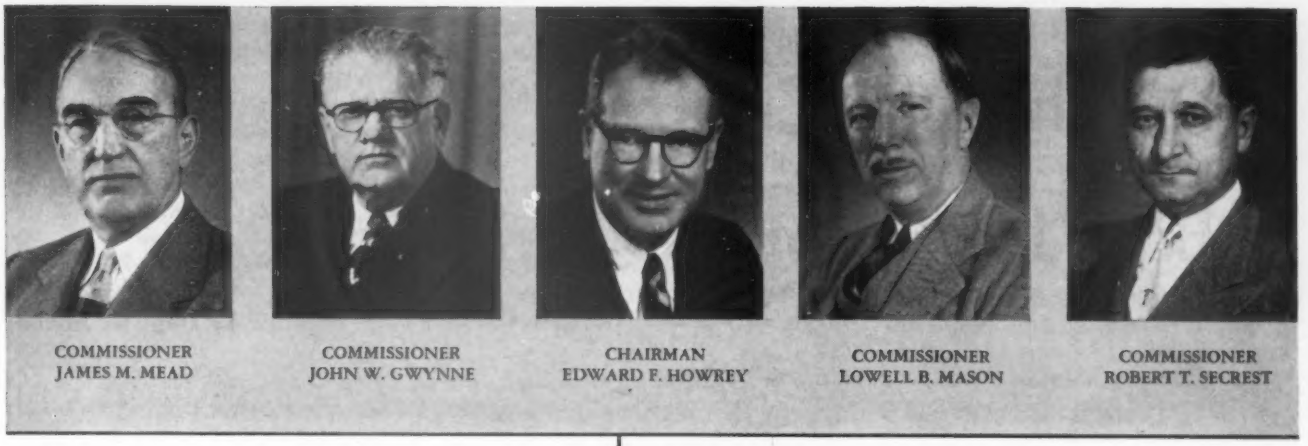
In a statement of General Procedures, the businessman is told how to place a complaint before the FTC and what happens to the complaint after he makes it. It explains that no formal procedure is necessary in order to make a complaint. If you are in Washington, you can call up or come in to the Commission's office. If you are out of town, you can write an informal letter to the Commission stating your problem in simple terms.

This procedure will start the ball rolling. After the initial complaint has been filed it is up to the Commission's chief project attorney to look at it from the standpoint of public interest. If he decides that the case involves the public interest, the Commission then becomes "the party." The individual who lodged the complaint is, in a sense, out of it. His name doesn't enter into the case at all and there is no expense to him. However, if the person or company who made the original complaint thinks it is in his interest to stay in the case, he can officially intervene and inject his own argument.

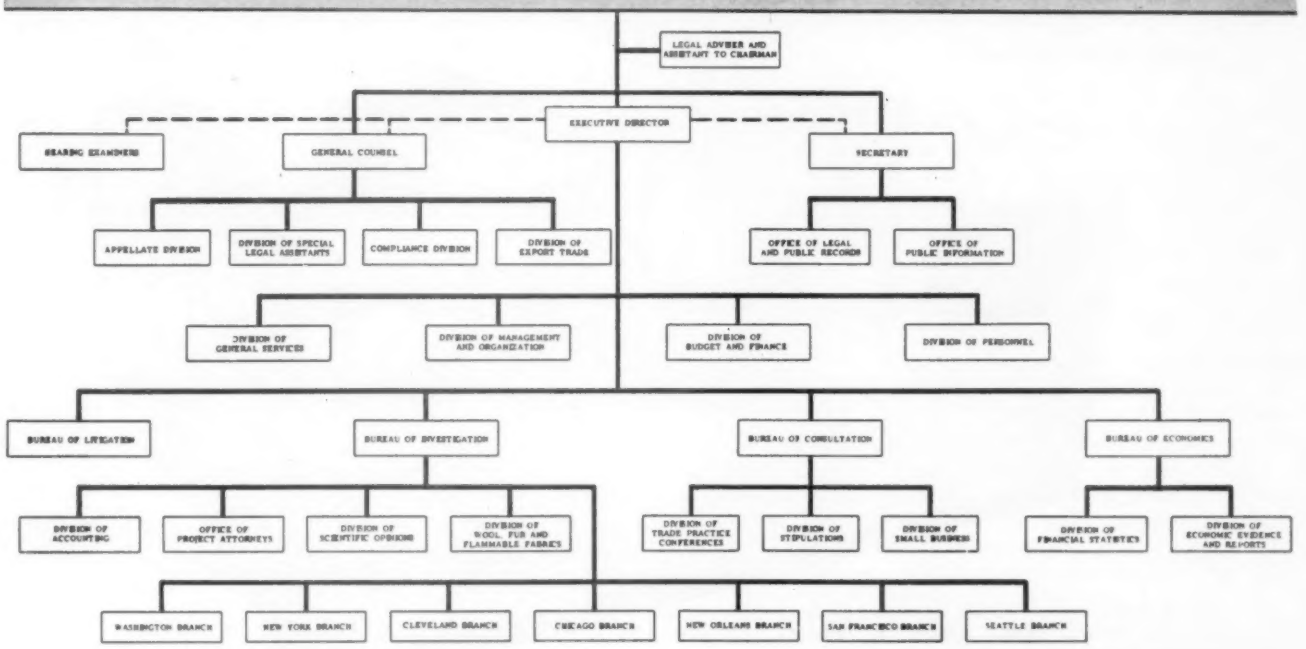
Investigative Powers

The booklet sets forth for the first time a full statement of the Commission's investigative powers. Broad powers were conferred on the FTC by Congress in 1914 to insure compliance with the Anti-Trust Acts. Since then, the Commission has been made responsible for the enforcement of eight different Acts. The booklet describes them in detail and ties them together.

Frequently the Commission's authority overlaps with that of other Government agencies, particularly the Justice Department. There is a



COMMISSIONER JAMES M. MEAD | COMMISSIONER JOHN W. GWYNNE | CHAIRMAN EDWARD F. HOWREY | COMMISSIONER LOWELL B. MASON | COMMISSIONER ROBERT T. SECREST



FEDERAL TRADE COMMISSION, ORGANIZATION OF STAFF FUNCTIONS

formal agreement between the two agencies to keep overlap to a minimum. A card exchange system has been adopted to avoid duplication in investigations. If Justice has the case, FTC drops it, or vice versa. In certain fields such as cases where the Robinson-Patman Act is involved, Justice defers to the FTC, although there is no formal agreement.

Cease and Desist Orders

The policy on issuance of cease and desist orders is not changed, but the procedure is simplified. The Commission's policy is:

"In order to avoid the expense and time involved in formal legal proceedings, it is the policy of the Commission to afford individuals, partnerships and corporations who have engaged in unlawful acts and practices an opportunity to enter into voluntary agreement to cease and desist therefrom when it appears to the Commission that such procedure fully safeguards the public interest."

However, this opportunity is not extended if the alleged violation involves false advertising of food, drugs or cosmetics which are harmful to use; if the case involves the sale of highly flammable fabrics and wearing apparel, or if conspiracy, discrimination or monopoly is charged.

Since 1914, over 8,000 cases have been settled on the basis of stipulation—that is, the Commission has not filed complaint but has given the party an opportunity to stop the practice. This practice is followed generally where the party has been proved to be acting in good faith with no intent to violate the law. Over the same period, 4,000 cease and desist orders have been issued by the Commission.

Anti-Merger Law

The Commission has adopted an informal procedure in order to assist businessmen to know in advance the legal problems that will be involved in a proposed merger.

After the FTC gets the facts about a proposed merger, either by conference or by letter, the companies involved are given staff advice on whether or not consummation of the merger would be likely to result in further action by the Commission.

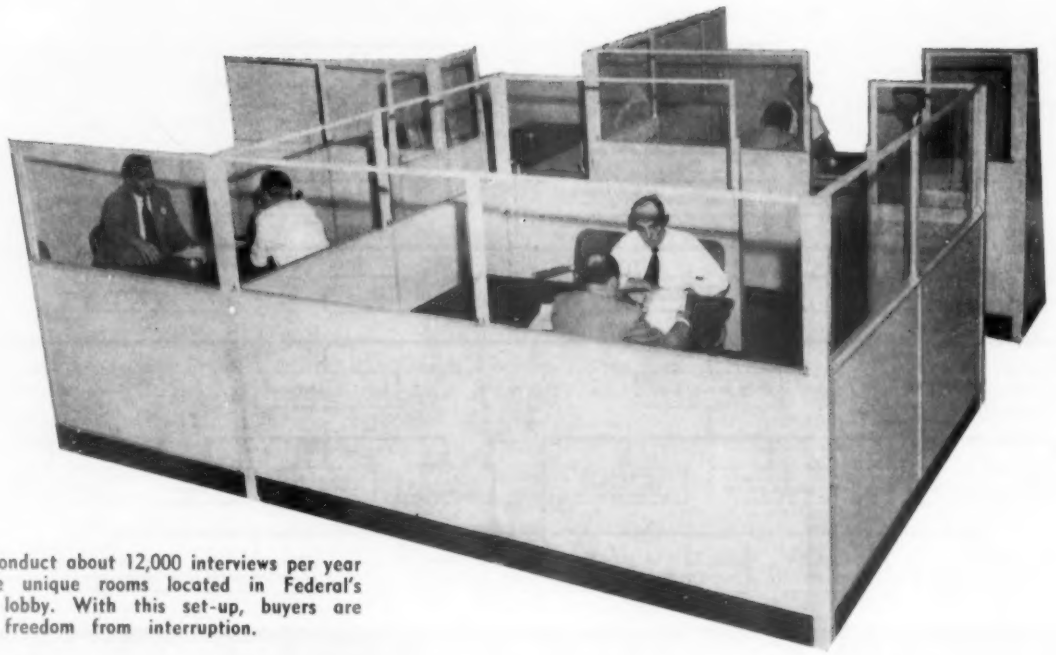
Economic Surveys and Reports

General and special surveys and investigations are conducted by the Commission's Bureau of Economics.

(*Please turn to page* 264)

Purchasing Controls for a Big "Job Shop" Operation

By Dean S. Ammer



Buyers conduct about 12,000 interviews per year in these unique rooms located in Federal's modern lobby. With this set-up, buyers are assured freedom from interruption.

JOB SHOP PURCHASING even on a relatively small scale poses plenty of problems. Light schedules, fluctuating inventories, and special customer needs require a greater degree of control than is usually necessary in a mass production industry. When a job shop operation is the basic activity of a large corporation, such problems are multiplied and intensified.

Federal Telephone & Radio Company of Clifton, N. J., is a good example. Though it has nearly 6,000 employees, Federal is basically a precision job shop. Its products, telephone switchboards and other complicated pieces of electronic equipment, simply do not lend themselves to mass production.

Orders for Federal's products vary from several pieces of a given product to several thousand. Orders do not repeat with sufficient frequency to justify making larger quantities of a given type of equipment and then carrying inventories in excess of actual need. Consequently, it is usually necessary to manufacture and purchase component parts for each individual order that is received from one of the company's customers. In fact, Federal issues more than 1,500 purchase orders weekly.

Two Big Problems

"Our two big headaches are getting maximum value for our relatively low volume requirements and getting materials in on time to meet schedules," says C. G. Sherwood, Federal's Vice President and Director of Purchases. The latter problem is not a small one in a job-shop type operation where the flow of thousands of individual parts and materials must be scheduled. Obviously, the shop can't complete an order until all of the parts for it are in, and there are many orders being worked on simultaneously in Federal's big plant.

Handling Detail Work

Purchasing must carefully follow the thousands of outstanding purchase orders for delivery and be certain that manufacturing operations don't get snarled up for lack of purchased components. Most of Federal's sales are the result of successful competitive bidding. Margins are tight. Delays on a few parts could raise havoc with shop efficiency and even produce red ink on a given order. Needless to say, a line stoppage is a rare event at Federal.

How does Federal control the tremendous amount of detail work inherent to its purchasing opera-

tion? Any PA familiar with job-shop type operation knows that detailed control is necessary if schedules are to be met and inventories kept at economical levels.

Federal's approach to this problem is a little different from that of many companies. All non-buying activities such as typing, expediting, etc., are centrallized in a Procurement Services section. In addition, this section includes a separate "status group" which compiles progress reports on the status of each job. By doing this, Federal is able to relieve its buyers of much detail work and also have centralized reporting for all of purchasing.

Here's what the status group does: From requisitions coming to purchasing from production control, it makes up its own bill of material for each job. Included in the list are part numbers, part names, buyer names, and quantity required. This is the basic master follow-up sheet, and the exact status of each part for a given job is kept track of on it.

When shipments against orders for a given job start to flow in, the master follow-up sheet is kept up-to-date by transcribing data from receiving reports onto it. Thus, the sheet will always indicate the balance due on order and the quantity received against any given order. If a delivery promise is revised for any reason this is also shown on the sheet. The clerk in the status group keeps the sheet up-to-date on all such changes by making weekly checks with the buyers involved.

How does purchasing management keep its finger on progress on the dozens of jobs that might be simultaneously in the works without getting hopelessly fouled up in the details? The pulse is measured with a "Purchasing-Job Status" report which is compiled from the master follow-up sheet. This form gives only the over-all-picture—the number of units covered for production, items received, items open, and promise dates on the "hot" items. With this report the purchasing agent and vice president in charge of purchases know just where trouble might be brewing and can follow buyers closely for further progress.

Vice President C. G. Sherwood meets with key members of Federal's purchasing staff. Seated (l. to r.) are H. P. Sommerer, Mr. Sherwood, and G. Glenn. Standing: H. W. Wittschiebe, B. N. Karpson, A. S. Long, and Charles Messner.

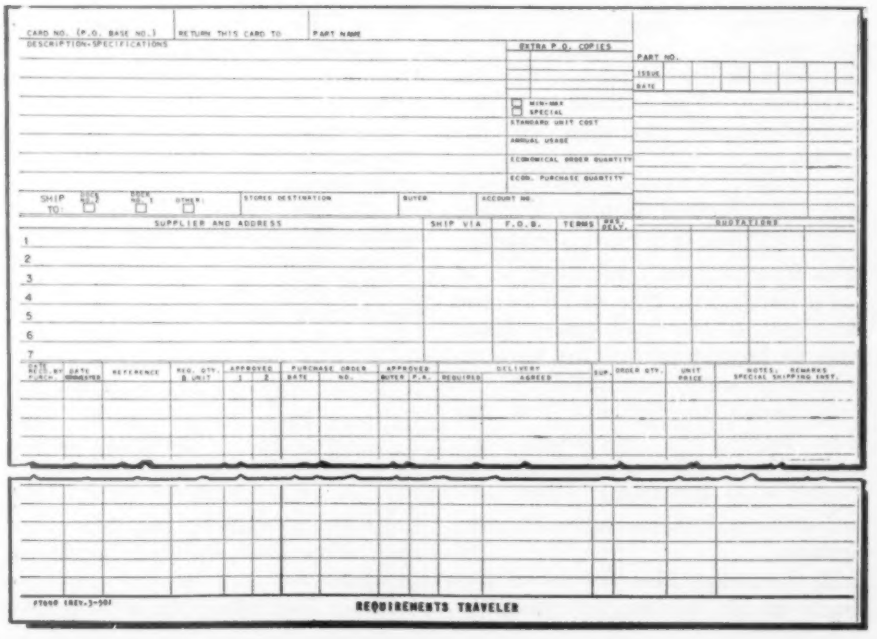
Checking on Progress

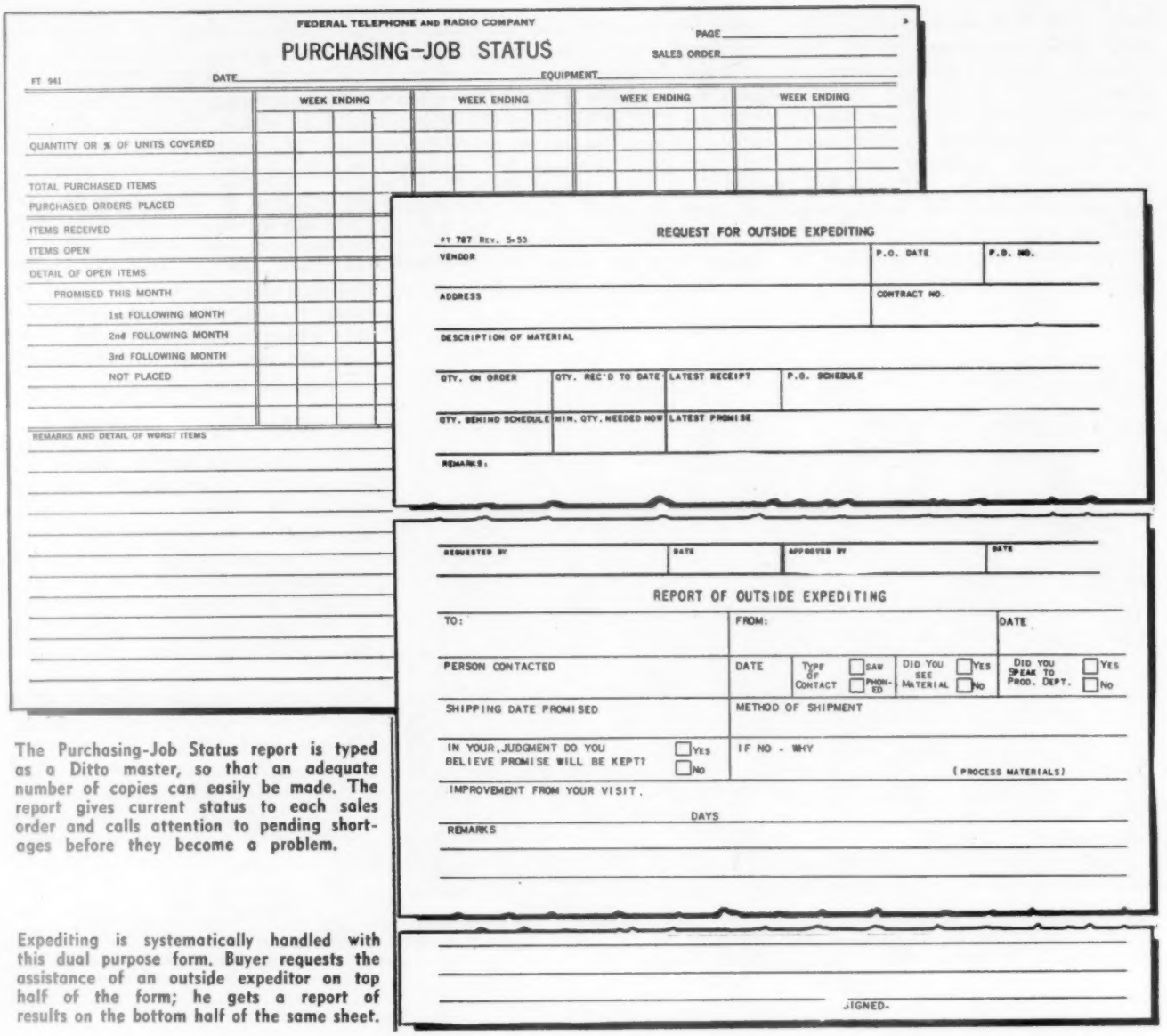
If nothing is known about the status of an order and the day the material it calls for is drawing near, the buyer or his assistant will check with the supplier for delivery information. Sometimes a firm delivery promise is requested by telephone; sometimes, a postcard is mailed requesting such information.

Should these efforts fail (and the item shows up on management's "Purchasing-Job Status" report as being behind schedule), an expeditor might be needed. In order to handle this job as efficiently as possible, skilled expeditors are available to any buyers needing their services.

When a buyer needs one, he fills out a "Request for Outside Expediting," gets it approved by his supervisor, and an expeditor is off

This traveling requisition is used for materials stocked in general stores, like oils and other non-productive materials where usage is constant and heavy. It is ruled on both sides of heavy card stock, providing space for handling 40 requests and reorders on a single form.





FEDERAL TELEPHONE AND RADIO COMPANY

PURCHASING–JOB STATUS

PAGE

SALES ORDER

FT 941 DATE EQUIPMENT

	WEEK ENDING	WEEK ENDING	WEEK ENDING	WEEK ENDING
QUANTITY OR % OF UNITS COVERED				
TOTAL PURCHASED ITEMS				
PURCHASED ORDERS PLACED				
ITEMS RECEIVED				
ITEMS OPEN				
DETAIL OF OPEN ITEMS				
PROMISED THIS MONTH				
1st FOLLOWING MONTH				
2nd FOLLOWING MONTH				
3rd FOLLOWING MONTH				
NOT PLACED				

REMARKS AND DETAIL OF WORST ITEMS

FT 787 Rev. 5-53

REQUEST FOR OUTSIDE EXPEDITING

VENDOR | P.O. DATE | P.O. NO.

ADDRESS | CONTRACT NO.

DESCRIPTION OF MATERIAL

QTY. ON ORDER | QTY. REC'D TO DATE | LATEST RECEIPT | P.O. SCHEDULE

QTY. BEHIND SCHEDULE | MIN. QTY. NEEDED NOW | LATEST PROMISE

REMARKS:

REQUESTED BY | DATE | APPROVED BY | DATE

REPORT OF OUTSIDE EXPEDITING

TO: | FROM: | DATE

PERSON CONTACTED | DATE | TYPE OF CONTACT ☐ SAW ☐ PHONED | DID YOU SEE MATERIAL ☐ YES ☐ NO | DID YOU SPEAK TO PROD. DEPT. ☐ YES ☐ NO

SHIPPING DATE PROMISED | METHOD OF SHIPMENT

IN YOUR JUDGMENT DO YOU BELIEVE PROMISE WILL BE KEPT? ☐ YES ☐ NO | IF NO - WHY

(PROCESS MATERIALS)

IMPROVEMENT FROM YOUR VISIT.

DAYS

REMARKS

SIGNED.

The Purchasing-Job Status report is typed as a Ditto master, so that an adequate number of copies can easily be made. The report gives current status to each sales order and calls attention to pending shortages before they become a problem.

Expediting is systematically handled with this dual purpose form. Buyer requests the assistance of an outside expeditor on top half of the form; he gets a report of results on the bottom half of the same sheet.

to the vendor's plant to investigate the problem. The bottom half of this form is the "Report of Outside Expediting." This is filled in by the expeditor and returned to the buyer.

Future Goals

Mr. Sherwood quite frankly admits that he hasn't achieved all of his goals as yet. One of his biggest problems is the high prices inherent to buying production parts in relatively small quantities. He is fully aware that paying 10% less than budget for purchased components of a given job can increase profits very substantially—or permit price reductions to meet competition.

Here's what Mr. Sherwood intends to do about getting better values. First, he has inaugurated a system of budgetary control so that there is a correlation between prices paid and prices upon which the company's bid to the customer was based. The estimated price of each part is now entered in pencil on the requisition. If the buyer cannot find a source that can meet or beat that target, it is up to him to call it to the attention of his purchasing agent so that the part can be thoroughly investigated. By doing this, Mr. Sherwood is naturally shooting to avoid cases where, let's say, Federal's price to the customer was based on $1,000 worth of purchased parts while purchasing actually spends $1,200 for the same parts—thereby possibly more than eliminating Federal's profit on the job.

Mr. Sherwood believes that standardization of components may well work out to be another tool for getting better value. Increasing efforts are being made jointly by purchasing and engineering to effect maximum interchangeability of like parts in the various products made by Federal. Although the company's many electronic products are sufficiently unlike so that buys in small qauntities will always be a problem, nevertheless, the standardization effort should prove to be a highly fruitful one.

But the real control over both delivery and price lies with the individual buyer. If he is alert, imaginative, intelligent and aggressive, deliveries will be prompt and prices will reflect maximum value. "Buyer development is the key to successful purchasing," says C. G. Sherwood.

The Pulse of Business

JULY, 1955

PURCHASING'S
Summary of economic conditions

1955 is shaping up as the best year in our economic history. Every major business barometer is at or near a record high. The Federal Reserve Board production index recently hit 138 - a new top. Annual personal income is near the $300 billion mark. Construction activity so far this year has topped the year-ago record high by 29%.

Most observers are as yet unable to foresee a let up in the current business pace. For example, the NAPA Business Survey indicates that "75% of the committee members feel that the second half of 1955 will equal or exceed the high levels established in the first half of 1955."

Optimism is supported by the fact that, so far, inventory accumulation hasn't gotten out of hand. Latest figures show some increases to handle increased sales. But, total stocks are still about $1 billion below their year-ago levels, despite greatly increased output.

One dark cloud on the horizon is labor unrest and the cost of labor peace. Although, so far, there have been no major strikes, the cost of avoiding them has, in some cases, exceeded the amount by which industry can reduce costs through better methods and equipment. Thus, part of the price of labor peace in the auto and steel industries, for example, will have to be paid for either with higher prices or lower profits.

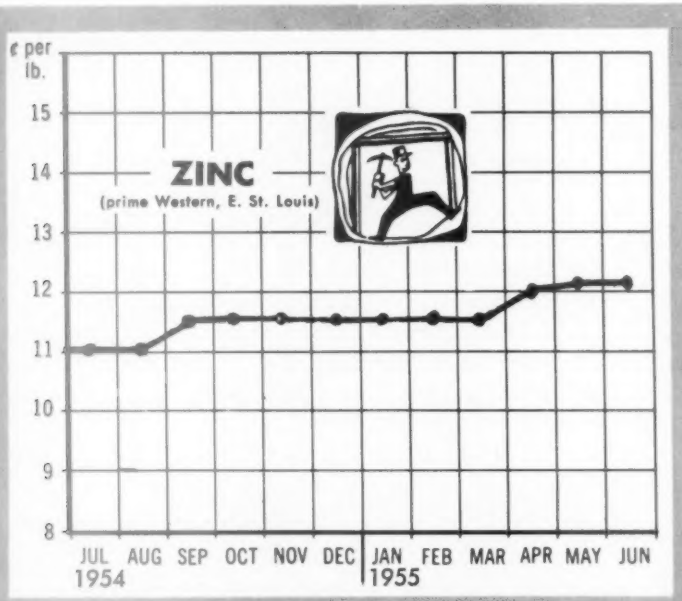
In many industries, the market simply won't take higher prices and profits will suffer. This could help retard further economic expansion, although it certainly hasn't so far. In fact, the Dept. of Commerce recently upped its estimate of this year's spending for new plants and equipment to $28.83 billion, just under the '53 record.

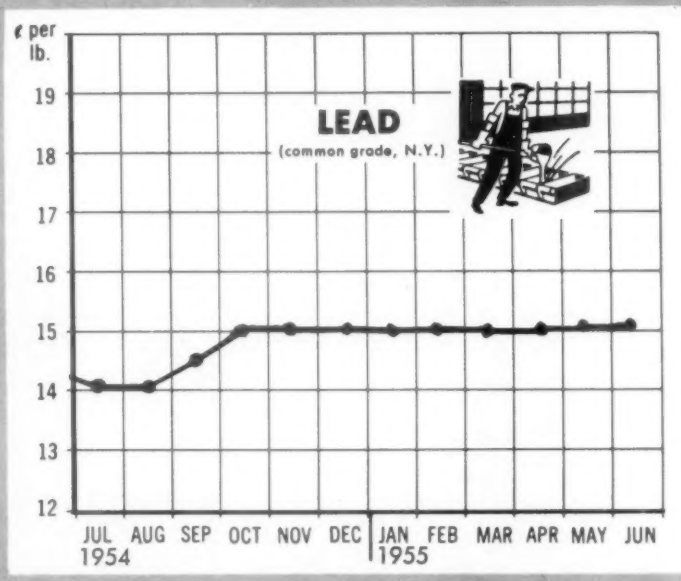
Unless there is a new round of expansion in the steel and aluminum industries, it is unlikely that over-all factory output will grow much beyond current levels. There simply aren't enough basic materials to go around. Already there are many cases of PA's scrambling to get required quantities of copper, aluminum and steel.

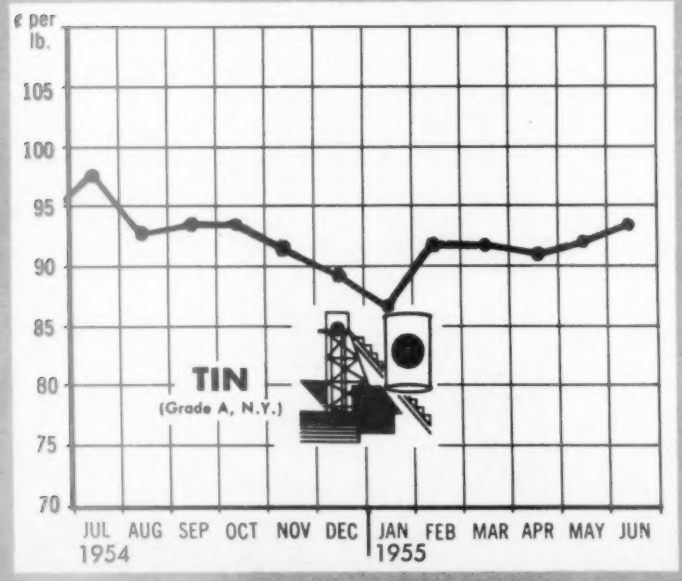
Most economists agree that the business outlook is the best it has been in many months - despite a record accumulation of mortgage and installment debt. However, as one well-known PA said at the recent NAPA convention, "When everyone is optimistic, it pays to pull in your horns; the cycle is getting ready to change direction ."

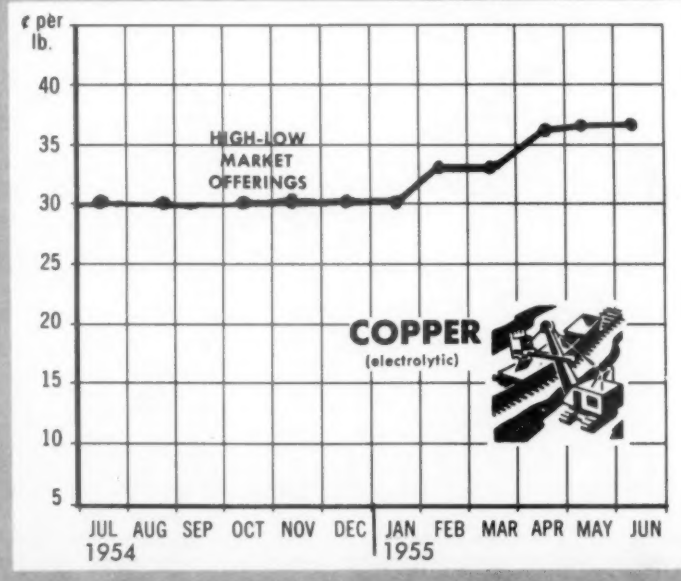
Steel Price Rise on the Horizon

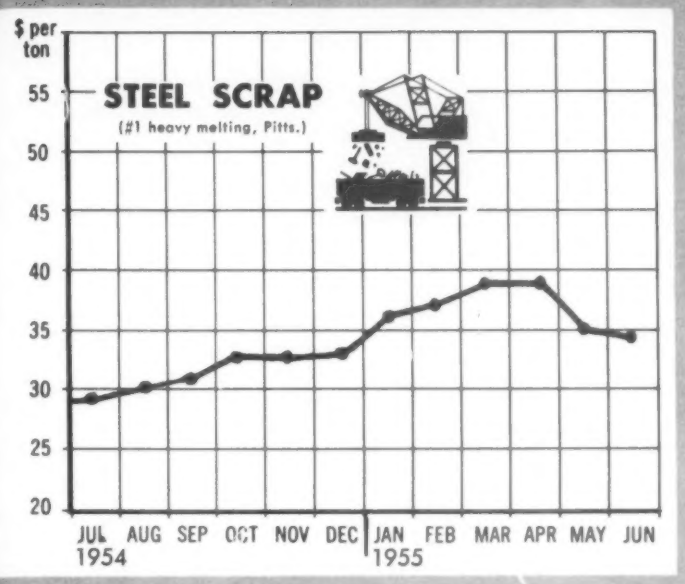
Opinion is that steel prices will be higher by early fall. Other major commodities like copper, aluminum, and rubber are already well above their year-ago price levels. There is no reason to believe that market won't take an increase in steel. Currently mills are shipping record tonnages and many types and shapes are in short supply. Steelworkers will probably be after a wage settlement at least as generous as that passed out by the auto industry recently. This increase and perhaps more might well be passed on to steel consumers. Another round of steel industry expansion appears desirable and higher prices may be necessary to finance new facilities. One dopester guessed that there would be an increase of 10c per cwt.

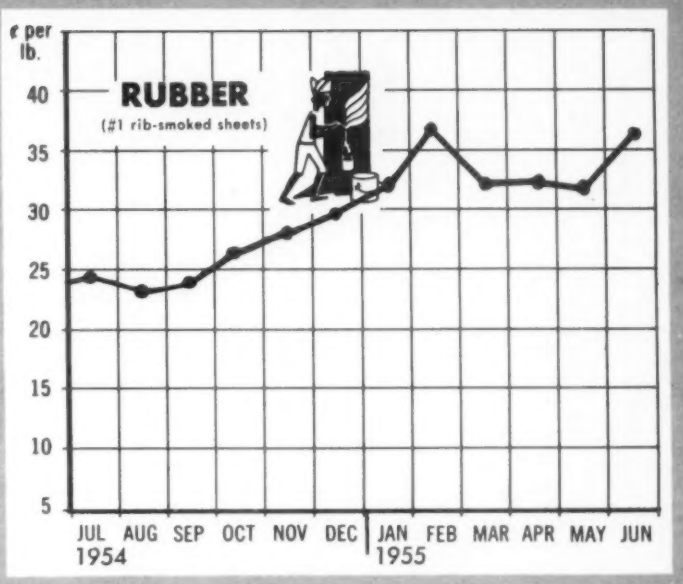


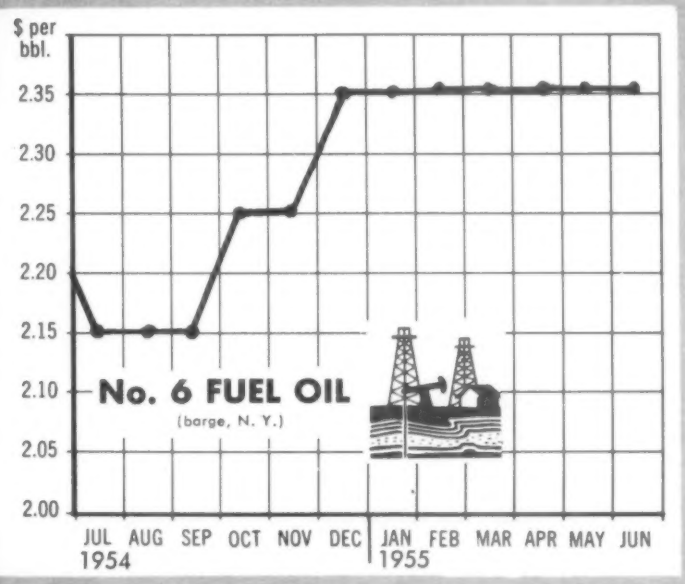


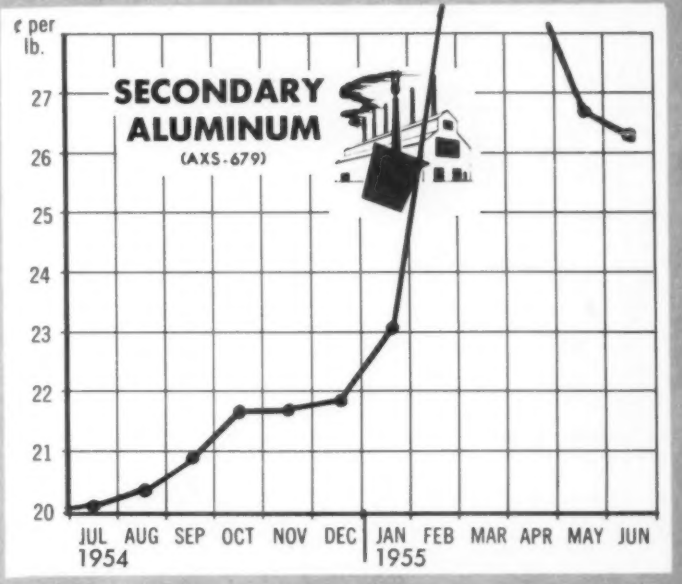


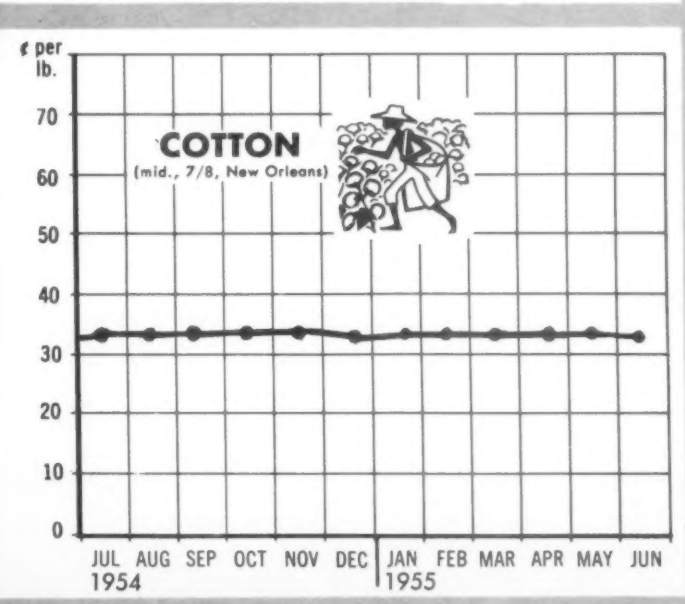


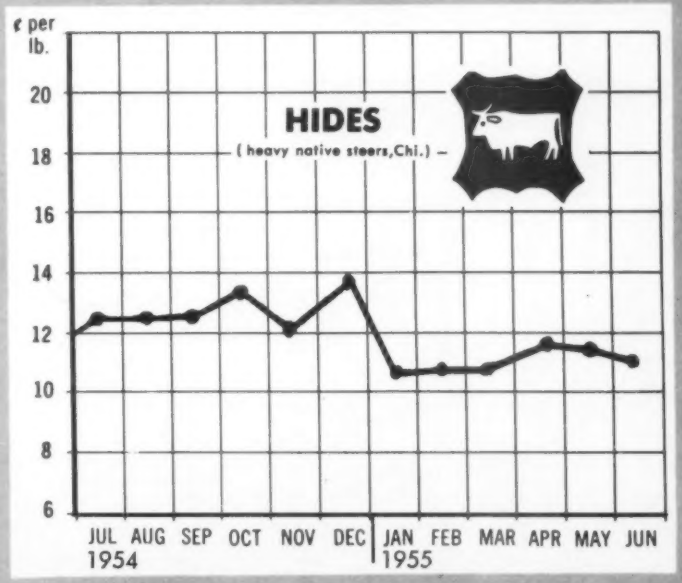

$ per ton
STEEL SCRAP
(#1 heavy melting, Pitts.)
55
50
45
40
35
30
25
20
JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN
1954
1955


¢ per lb.
RUBBER
(#1 rib-smoked sheets)
40
35
30
25
20
15
10
5
JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN
1954
1955


$ per bbl.
No. 6 FUEL OIL
(barge, N. Y.)
2.35
2.30
2.25
2.20
2.15
2.10
2.05
2.00
JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN
1954
1955

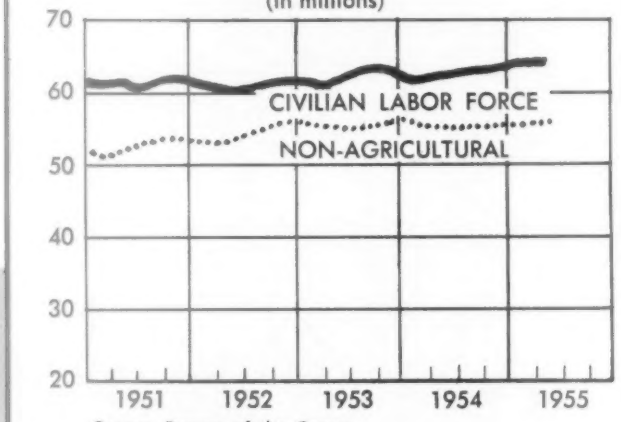

¢ per lb.
SECONDARY ALUMINUM
(AXS-679)
27
26
25
24
23
22
21
20
JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN
1954
1955


¢ per lb.
COTTON
(mid., 7/8, New Orleans)
70
60
50
40
30
20
10
0
JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN
1954
1955


¢ per lb.
HIDES
(heavy native steers, Chi.)
20
18
16
14
12
10
8
6
JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN
1954
1955

EMPLOYMENT

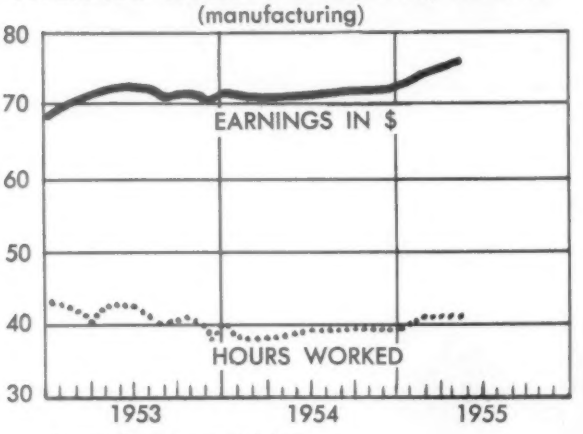
(in millions)



Source: Bureau of the Census

AVERAGE WEEKLY EARNINGS, HOURS

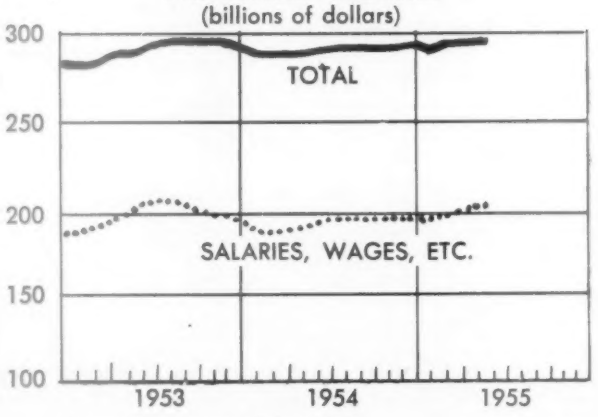
(manufacturing)



Source: Department of Labor

PERSONAL INCOME

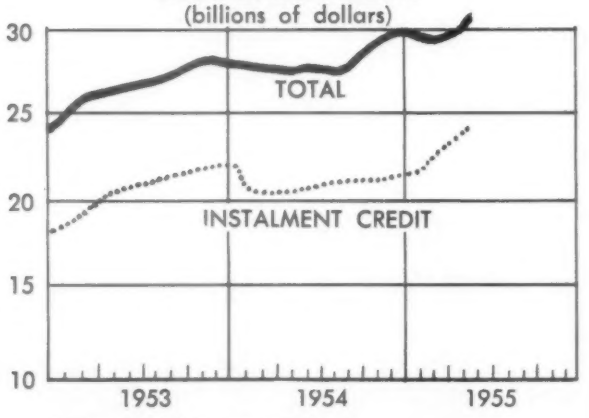
(billions of dollars)



Source: Department of Commerce

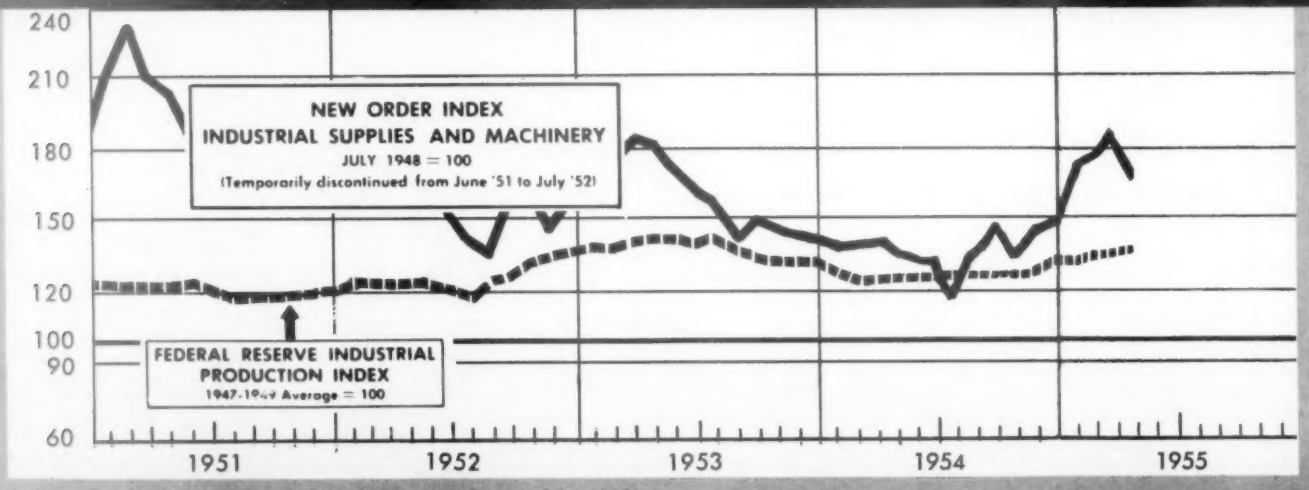
CONSUMER CREDIT

(billions of dollars)



Source: Federal Reserve Board

NEW ORDER INDEX INDUSTRIAL SUPPLIES AND MACHINERY



Source: American Supply & Machinery Manufacturers' Association

You have to get the oil to the bearing

Applying Industrial Lubricants

By R. K. Gould, Research & Technical Division, The Texas Company, New York

THE *right lubricant in the right amount* in the *right place* at the *right time*—these four factors spell satisfactory lubrication.

Lubrication requirements of modern machines with their high speeds, heavy loads and close tolerances have increased severally over the years. The development of lubricants has kept pace with the requirements, and new and improved products to satisfy the needs continue to be made available in increasing numbers. However, the best lubricant in the world is of no value until it is applied to the bearings or other surfaces to be lubricated.

Proper application of the lubricant has been a weak link in the series of steps that lead to satisfactory lubrication. The fault has not been the lack of adequate facilities and means of applying lubricants, but rather the failure to adopt and employ these methods for machine lubrication.

The familiar hand oiler and squirt can were among the first devices used. Although inefficient and dependent entirely on the human element, they provide a cheap and adequate means of administering lubricant to satisfy the limited requirements of the earlier machines. The number of points to be lubricated on these old machines were few, and because of the slow speeds, light loads, and large clearances, it mattered little whether the bearings were over-lubricated, under-lubricated, or lubricated at all in some cases.

However, the design of modern machines practically precludes the use of such primitive, inefficient methods. Not only are the bearings in today's equipment far more numerous, but they are precision built to operate at much more severe conditions. Satisfactory operation depends not only on the right lubricant, but also on the right amount applied at the proper time. Thus, controlled application is essential. Furthermore, the size of the average industrial plant has increased many-fold over the years. All factors considered, it is just too much to expect an oiler, equipped with a grease gun or squirt can, to locate every point that requires lubrication and see that it is lubricated properly.

Modern machines require devices for lubricant application which are as independent as possible of the human element. On the surface at least, it would appear that this is pure common sense. However, there is still a large segment of industry relying on outmoded methods of applying lubricants to maintain and protect its expensive production equipment. Many times a mechanical failure may be blamed on the lubricant, when actually the application is at fault.

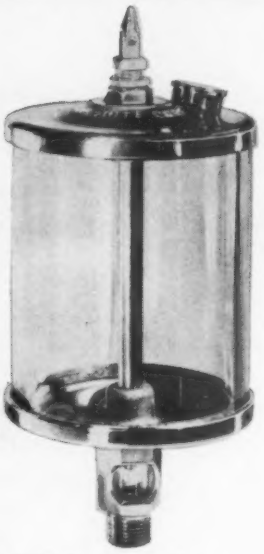
Survey of plant lubrication practices have revealed some astounding findings—not only with regard to the wide extent of malpractices and the resultant costs thereof, but also as to the amount of over-all savings that have been realized by the correction of these practices. The following brief account of an actual case history (*Industry and Power*, March 1952) will serve as an illustration.

A study was made of lubrication practices as related to 60 machine tools performing multiple operations including turning, boring, drilling and reaming. These machines had been in operation for 10 years, and the operators were assigned the responsibility of lubricating the tool slides. They were furnished with hand grease guns and were supposed to devote 15 minutes of every 8-hour shift to lubricate the 21 points on each machine. The study revealed that the tool slides either were being lubricated improperly or had not been lubricated for a long period of time. The reasons for this condi-

GRAVITY FEED OILERS

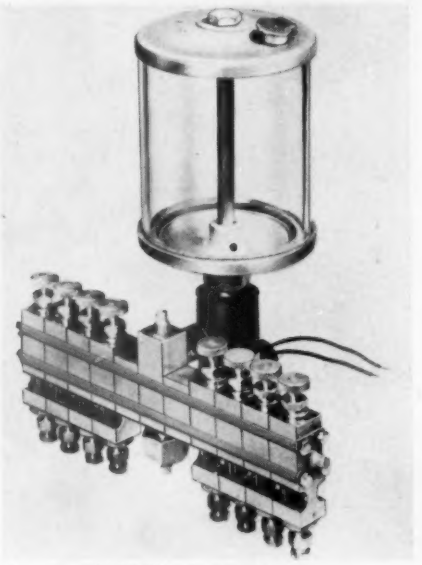
Courtesy of Gits Bros. Mfg. Co.

FIGURE 1. Simple gravity feed oiler installed at each point to be lubricated in effect provides every bearing with its own individual lubricating system. Transparent reservoirs (glass or plastic) permits oil supply to be visible at all times and protects oil from contamination. Normally, rate of flow is controlled by a needle valve, adjustable over a wide range. Due to the wide range of reservoir capacities available, selection can be made so that refilling should be necessary not more than once a week, and normally they should operate a month or longer with one change of oil.



Courtesy of Oil-Rite Corporation

FIGURE 2. In this oiler, feed rate is controlled by a precision needle valve, and hairline adjustments can be made readily by a knurled cap screw located atop the reservoir, and adjustment can be locked against severe vibration. Flow of oil is started or stopped by flipping toggle lever over the lock screw. Operation of the toggle is entirely independent of the feed adjustment. This feature makes this type of unit particularly adaptable to equipment which is operated intermittently. A sight glass in the mounting shaft enables one to observe the drop feeding.



Courtesy of Oil-Rite Corporation

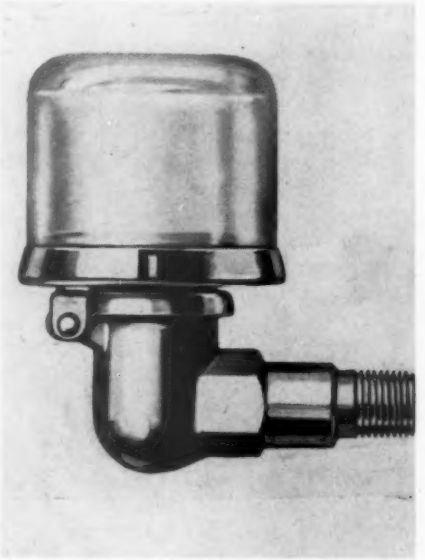
FIGURE 3. Multiple-feed oilers supply lubricant to 20 or more points from a single reservoir. In this unit, the flow of oil is started and stopped automatically by the use of a solenoid valve connected across the line of the driving motor of the machine to be lubricated, so that lubrication begins as soon as the motor switch is turned on. Each of the eight sight feed valves is equipped with its own friction screw for independent, finger-tip adjustment of the flow rate.

Courtesy of Trico Fuse Mfg. Co.

FIGURE 4. A thermal oiler is a gravity feed device which relies on temperature change to start and stop the flow of lubricant. As heat develops in the bearing area, the air in the oiler expands and forces a few drops of oil onto the bearing. As the film of oil on the bearing increases, the temperature drops and the flow of oil stops automatically. This cycle is repeated continuously. Oilers of this type are suited especially for lubricating bearings which require only a small amount of oil. The feed rate can be adjusted simply by turning the dome.

Courtesy of Trico Fuse Mfg. Co.

FIGURE 5. Vibrating rod oilers are designed for lubrication of permanently fixed shafts and other vibrating or rotating parts. They are particularly suited for installations in dusty surroundings, for inaccessible bearings, and for intermittent operation. A metal spindle passes from the reservoir through a tight fitting sleeve, and rests lightly against the part to be lubricated. As the part rotates or vibrates, the feed rod also vibrates. The pumping action permits small amounts of air to enter the reservoir, thus causing lubricant to flow through a port, down the rod to the bearing. Flow of oil ceases automatically when the vibrating member stops.



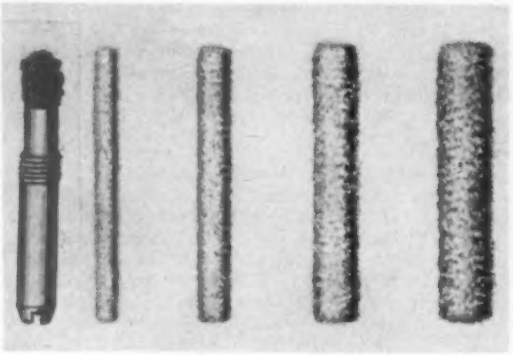
Courtesy of Gits Bros. Mfg. Co.

FIGURE 6. Constant level oilers are used with ring, chain, and collar oiled bearings, which are in effect miniature circulating systems, in which the rotating parts dip into a small reservoir of oil in the housing and carry the lubricant to the bearing. In this unit, the desired level is maintained by virtue of a liquid seal between the oil in the lubricator and that in the bearing reservoir. As oil is consumed by the bearing, the level in the bearing housing drops. This breaks the liquid seal temporarily, and oil flows from the lubricator to the bearing, restoring the level in the housing to its original value.

WICK FEED OILERS

FIGURE 7. Wick feed oilers operate on the principle of capillary action, and deliver a slow but continuous supply of filtered oil to the points to be lubricated. They are commonly employed to lubricate bearings, guides, slides, and spindles which must operate continuously and which are located in dusty surroundings. Under-feed wick oilers are normally used on small electric motors, loose pulleys, and similar applications where positive feed must be provided while the equipment is operating, but with protection against waste oil or leakage during idle periods.
Courtesy of Trico Fuse Mfg. Co.

FIGURE 8. Vari-feed oiler with removable wicks. Rate of oil flow in wick oilers varies with the oil level in the reservoir, temperature and viscosity of the lubricant, composition and size of the wick, and the manner in which the wick is installed. In this vari-feed oiler, wicking is placed in a removable retainer located at the base of the reservoir. Wicks of various sizes are supplied. By using them singly or in combination, feed rates can be adjusted over a wide range. Sight glass at the bottom permits the feed to be observed.
Courtesy of Trico Fuse Mfg. Co.



tion were found to be numerous and varied, including: neglect on the part of the operator; new operator not properly instructed as to his responsibility; grease gun lost or misplaced; no grease on hand; fittings damaged or missing.

These conditions were corrected by installing a central system on each machine and relieving the operators of the responsibility for lubrication. The results that followed were amazing. Maintenance cost was reduced 60%. Production from these machines was increased 20%. The quality was better. The amount of rejects was reduced substantially because with proper lubrication, size and finish were maintained more consistently. These factors all added up to tremendous savings and greatly improved operations.

This experience has been repeated over and over again in plants where measures have been taken to correct faulty, inefficient methods of applying lubricants, and is typical of the benefits that can be realized.

Centralized lubrication systems which supply measured quantities of lubricant to all the bearings of a machine or group of machines are now being employed extensively on industrial equipment. Although they vary widely in design, all systems have three basic features in common:

(1) a pump or some other positive means of delivering lubricant from a reservoir and forcing it through—

(2) a distribution system of piping or tubing to—

(3) measuring or metering devices which regulate the amount of lubricant that is applied to each bearing.

These systems may be characterized by the method by which they are operated, i.e., manual, semi-automatic, or completely automatic. Centralized lubrication can be installed on equipment already in use, or it can be built into a machine at the time of its manufacture. With the growing realization that lubrication is no longer simply a maintenance item, but actually a necessary component of the equipment, more and more machinery builders are installing centralized systems as an integral part of their machines.

There are many varieties and types of equipment available for application of industrial lubricants, ranging from devices to lubricate a single bearing to automatic, central systems, capable of lubricating all of the machinery in a plant. Each of these fills a need and occupies a definite niche in the general field of applying lubricants. Some of the typical methods and techniques are shown herewith. The equipment and devices illustrated are to be examples. Obviously it is impossible to cover the whole field in one short article. Furthermore, no attempt is made to compare the relative advantages or disadvantages of one method with another.

FORCE FEED LUBRICATORS

FIGURE 9. Ratchet drive, single feed, fully enclosed lubricator. The drive arm at right is connected to a source of reciprocating motion, actuating a crankshaft. The lubricator contains a pump valve which is an independent unit bolted to the cover plate. Oil is drawn through a screen filter into the suction tube and thence into the plunger chamber. Amount of oil delivered per stroke can be varied by a knurled screw adjustment.

Courtesy of Hills-McCanna Co.

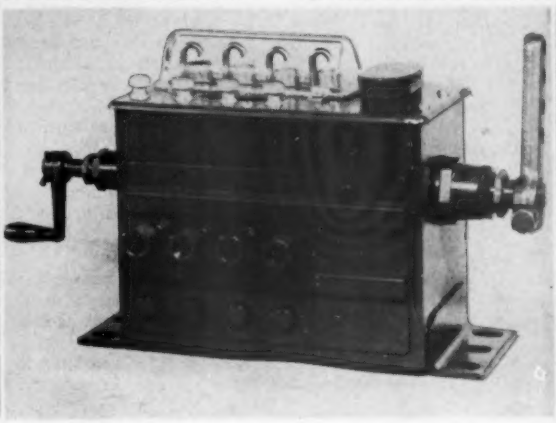


FIGURE 10. Ratchet drive force feed lubricator with multiple feed units. The pumping principle in this unit is based on registering ports. There are no valves, but positive metering is attained by means of oscillating ported plungers. Feed rates are individually adjustable and range from a fraction of a drop to ten drops per impulse, and the number of impulses per minute will depend on the speed of operation.

Courtesy of Madison-Kipp Corp.

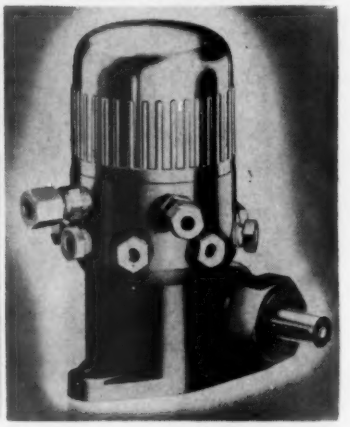


FIGURE 11. Rotary drive lubricator designed especially for small individual machine units. It can be installed in a reservoir in the base of the machine or in one located apart from the machine. Eight feed outlets are provided, and the feed per impulse can be regulated accurately from zero to two drops for each outlet.

Courtesy of Madison-Kipp Corp.

Courtesy of Trabon Engineering Corp.

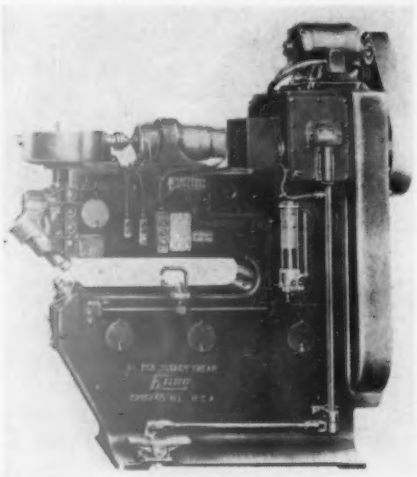


FIGURE 12. Manually operated central lubricating system on a rotary shear machine. Such a system is particularly suited for equipment where lubrication is not required more than two or three times per shift. A group of metering valves located at top center of the machine control the amount of lubricant going to each bearing. The feeders operate progressively, one after the other, and a single indicator at the pump tells when all the points have been lubricated.

Courtesy of Trabon Engineering Corp.

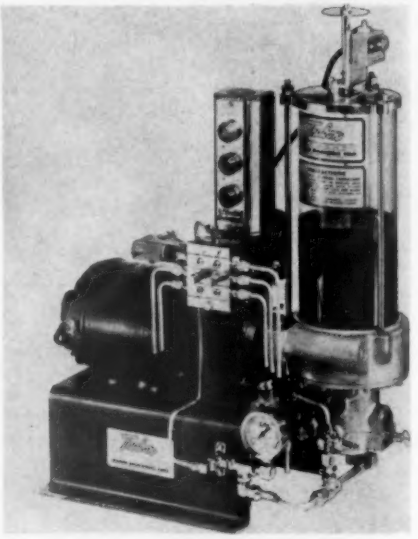
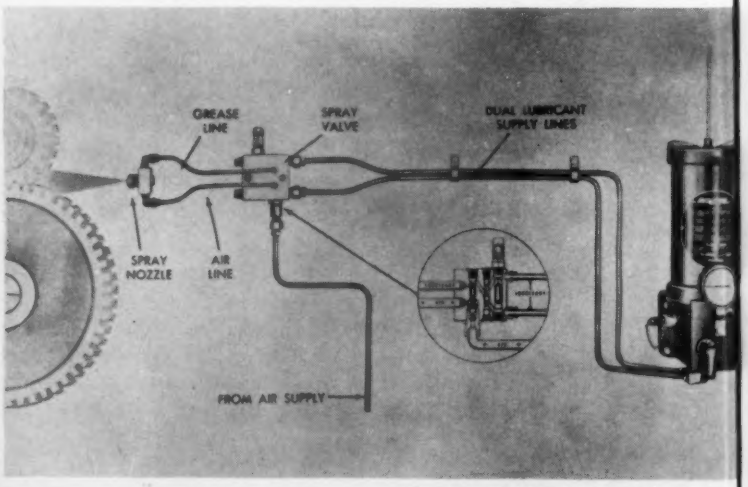


FIGURE 13. Motorized pump and reservoir assembly for continuous or time-clocked control of a central lubricating system. The pump can operate at pressures up to 3,000 pounds. A pressure gauge mounted in the pump base permits easy observation of the pressure during the pumping cycle. The unit is equipped with safety blowout disc, blinker signal, and warning devices.

FIGURE 14. Another type of central system has two main supply lines leading from the pump and reservoir to the metering valves. A flow control valve at the pump directs the flow of lubricant into either main line, providing for automatic operation of all the metering valves in the circuit. The measuring valve in this system is essentially a double acting hydraulic valve which measures by piston displacement and is easily adjustable.

FIGURE 15. Schematic sketch of a spray lubrication system for slide surfaces and open gearing. The spray valve meters both the amount of air and lubricant going to the nozzles and also turns the air on and shuts it off. This limits the amount of air used to the quantity needed to spray each delivery of lubricant without exhausting or reducing pressure. Positive cut-off of lubricant by the valve after each delivery prevents dripping from the nozzle.

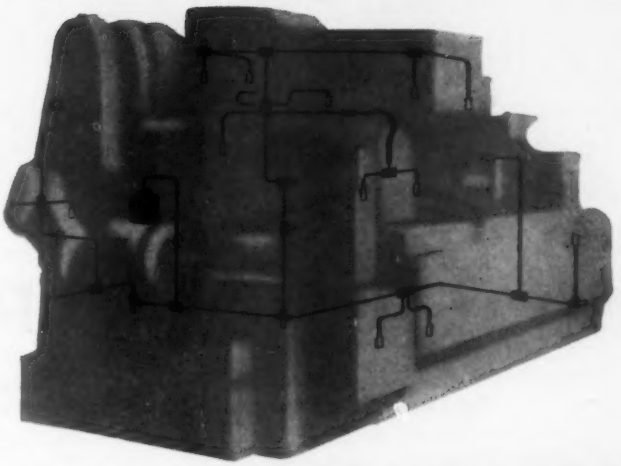


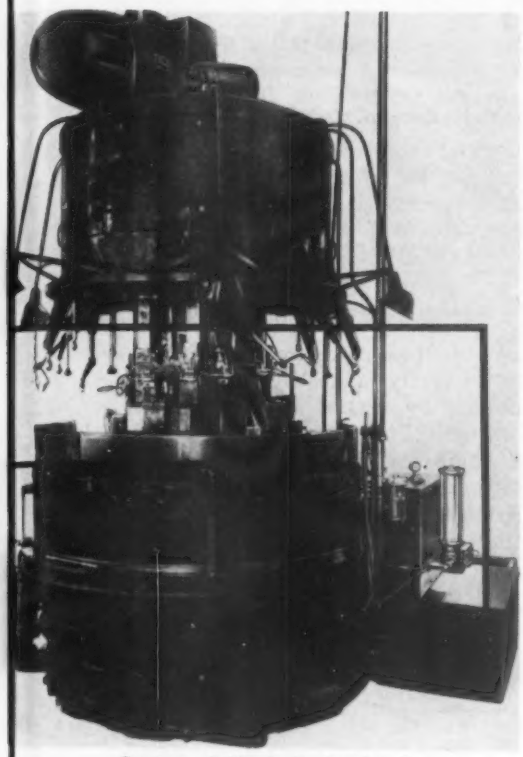
Courtesy of Farval Corporation

Courtesy of Farval Corporation

FIGURE 16. Diagram of distribution system for a central force feed lubricator. It consists of a single line tubing circuit with branches to carry the lubricant under pressure to all points to be lubricated. Flexible hose is used for bearings on a moving part. A spring discharge piston pump is driven automatically by the machine or a motor. Amount of lubricant delivered to the system is measured and controlled at the pump, and meter units determine what portion of the total quantity goes to each bearing.

Courtesy of Bijur Lubricating Corp.



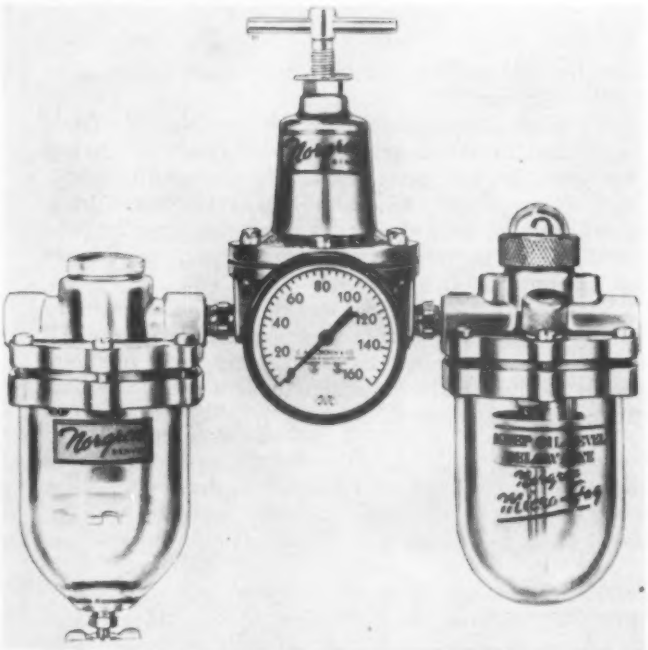


Courtesy of Lincoln Engineering Co.

FIGURE 17. Centralized system designed for automatic power lubrication of individual machine units in automated production lines. Operation of the air-operated single stroke pump is controlled by a multi-functional air valve component. This valve can be actuated manually, mechanically, or electrically, and frequency of the lubrication cycle can be controlled manually, electrically by a time clock, or mechanically by cam action off the machine.

FIGURE 18. Push button controlled system for lubricating up to twelve bearings. The lubricator is a measuring chamber with twelve outlet ports and fitted with a spring loaded plunger. It supplies an equal amount of lubricant simultaneously to each bearing, through rigid or flexible tube lines connected to the bearing ports. After discharge of lubricant, the plunger returns to its normal position and the measuring chamber is automatically reloaded from the reservoir.

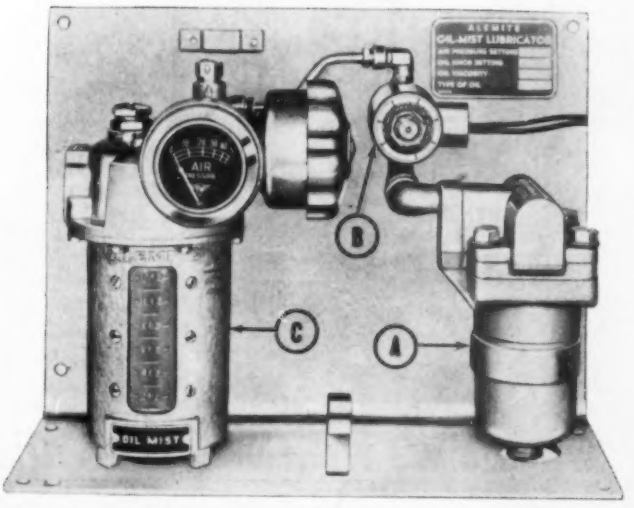
Courtesy of Lincoln Engineering Co.



Courtesy of C. A. Norgren Co.

FIGURE 19. Micro-Fog lubricator with air regulator and purifier. By air pressure on the oil supply in the bowl and siphoning action at the venturi plug, oil is carried from a constant level reservoir through the siphon tube and needle valve, and is diffused into micro-fog in the oil bowl above the supply. Only particles of two microns or less are carried into the distributing lines. Rate of flow is controlled by a metering device in an auxiliary air circuit, and there are no metering adjustments in the oil feed circuit.

ATOMIZED LUBRICATION



Courtesy of Alemite Div., Stewart-Warner Corp.

FIGURE 20. Oil-Mist lubricator with air purifier, solenoid valve, and regulator. Incoming air first passes through a moisture separator (A) which removes most of the moisture and screens out foreign particles. Flow of air is controlled by a solenoid valve (B) and flows to the lubricator only when the machine is on. The mixture of oil and air from the venturi is thrust against a baffle plate and only the smallest particles are blown into the delivery line. Line air pressure is reduced by an adjustable air regulator as it enters the lubricator (C).

Certification of Quality Minimizes Inspection

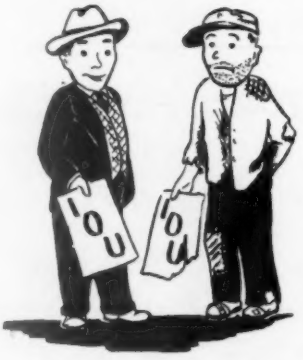
By **Leon Bass,** Manager, Quality Engineering, Jet Engine Department, General Electric Company, Cincinnati, Ohio

What Is Vendor Certification?

During the past few years, there has been a great deal of talk about Vendor Certification. Like a great many comparatively new subjects, the talk has been confusing—around the subject, rather than pointed directly at it—and there are about as many ideas of just what Vendor Certification really is as there are people talking about it.

Webster's dictionary defines certification as: "to attest authoritatively, to verify, to testify in writing, to assure, to make certain, to endorse authoritatively as being of standard quality, to guarantee." Vendor Certification implies some assurance or guarantee, generally written, attesting to the quality of the material a vendor furnishes to the customer.

How Reliable Is It?



What good is a note to pay a debt? How reliable is a promise to pay bills on open account? What value does any guarantee by a manufacturer have, that he will perform certain operations under certain conditions?

All these items have one common factor. Their value lies in the character of the one who makes the promise—his past reputation, his credit rating. The chances that he will do what he says in a guarantee, or note, or certification, are directly proportional to the record performance and confidence he has built up in the past.

Vendor Certification is based on Vendor quality credit rating. It is based on a Vendor's past quality performance in much the same way as a financial credit rating would be based upon a Vendor's past financial performance.

Why Do We Want Vendor Certification?

1. *To reduce inspection costs.* If we have confidence that material coming into the plant meets all the requirements of the specification, we can eliminate or reduce incoming inspection and save time and money. Other things being equal, it is certainly foolish to spend as much inspection effort on material from a Vendor who has demonstrated time after time that he meets quality requirements, as on material from a Vendor whose record shows either an inability or unwillingness to comply with the specification.

2. *To reduce operating costs.* It is the normal function of the Inspection Department to separate the good lots from the bad. This may be done by sampling, or by 100% sorting. However, the perform-

ance of this job at a highly efficient level may still be very costly or even disastrous in certain operations.

For example, take the case of a fast moving production line on television sets, cathode ray tubes, or automobiles. Parts are usually scheduled quite closely for delivery. A few days lead is quite common in some cases, often because of the size of the component, the scheduled supply is just a matter of hours. It is more profitable to use space for manufacturing operations than for storage. Such things as television cabinets, cathode ray tube bulbs, or car bodies, are bulky and expensive items to store. Therefore it is logical to plan the arrival of these components at the latest possible time.

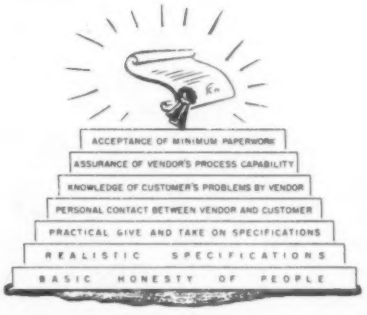
This works fine if the material turns out to be of the proper quality. But what happens if it is below standard? Production lines may grind to a halt, and workers be paid for idle time or laid off while feverish efforts are made to rework the substandard material or obtain replacements. To avoid these losses, a decision may be made to use the substandard material, either after rework or as is. In either case, costs are increased—because of the extra operations required or because of a higher reject rate of the finished product.

Even if there is sufficient lead time to reject the material and continue operations with previously accepted parts, there is still the cost of repacking and shipping back to the vendor. In other words, if most of the incoming material can be brought into the plant without rejection, production savings (sometimes very large ones) can be effected.

3. *To reduce material costs.* There is no use deluding ourselves about the cost of scrap or rejections of purchased material. In the long run, the user pays for it. Even though he might get credit for individual items, the prices to the user must reflect the total cost of the Vendor's operations. If rejections are high, prices will have to be higher. If the user can do anything to lower the quantity of rejections, scrap, or rework, at his own plant or at the Vendor's, he stands to gain price-wise.

4. *To improve vendor relations.* Free exchange of information will allow the Vendor to improve quality and reduce costs. A mutual understanding of the user's requirements and the producer's problems will lead to better, cheaper solutions of the problems at hand. Such an exchange of information generally puts the user on better terms with his suppliers. It encourages them to think not only about their own problems, but of the user's requirements also. It gives them more incentive to contact him about questionable items. All these things tend to improve quality or reduce costs, and provide each with greater profit opportunity.

What Steps Lead To Vendor Certifications?


ACCEPTANCE OF MINIMUM PAPERWORK
ASSURANCE OF VENDOR'S PROCESS CAPABILITY
KNOWLEDGE OF CUSTOMER'S PROBLEMS BY VENDOR
PERSONAL CONTACT BETWEEN VENDOR AND CUSTOMER
PRACTICAL GIVE AND TAKE ON SPECIFICATIONS
REALISTIC SPECIFICATIONS
BASIC HONESTY OF PEOPLE

1. The principle of free interchange of information between Vendor and Customer must be established.

2. The philosophy that most people are basically honest must be accepted. A start can be made by asking ourselves: "Would I deliberately ship product to a customer knowing it did not meet a specific vital requirement of his?" The answer in most cases would be "No."

We might ask ourselves a second question: "Would I deliberately ship product to a customer knowing that it deviated slightly from a drawing or specification, but not knowing definitely that this would be a serious factor to the customer?" The answer might be "Yes" on certain occasions where rejection would cause delay or if the customer had been expediting the order. However, if you had fairly complete knowledge of the customer's requirements, you would be much better able to decide how far you could go on a quality variation and would be inclined at least to contact the customer before shipping, explaining the circumstances and alternatives involved.

Most of us are both Vendors and Consumers. Why should we wear two different hats?

3. Having established these two principles, the balance of the problem is purely mechanical. A review of actual requirements must be made. Each dimension, tolerance, or characteristic that is critical or important must be determined. Those of less critical nature should also be catalogued. This may take the form of a classification of defects, and various acceptable qualifications assigned to those classes if sampling methods are to be used. It may also take the simpler form of coded drawings or some other plan that will enable the Vendor more thoroughly to comprehend the requirements.

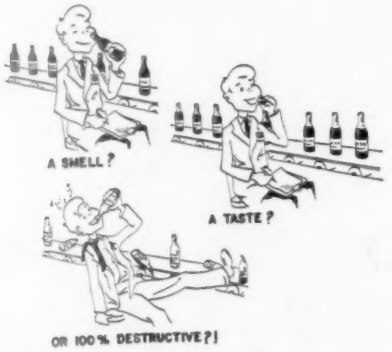
This information must then be transmitted to the Vendor in such a way that it is completely understandable to him. If it is simple, concise, and straightforward, a letter or bulletin may suffice. A meeting with a Vendor will usually produce results of far greater significance. If the value of the product involved or the consequences of errors that might result from misunderstanding is of sufficient magnitude, the regular exchange of visits between responsible members of the Vendor and Consumer organizations is indicated. Suggestions for improving the product and lowering the cost often result.

How Much Information Should Be Supplied?

In connection with a Vendor Certification, it is desirable to have all the information that it is possible to obtain about a lot of product. However, in many instances, attribute type of information such as quality level, process average, and the type of sampling plan and classification of defects will suffice. The latter two items, of course, should be agreed upon in advance and do not normally change from lot to lot. Where variables data can be obtained economically or where they are vital to ultimate acceptance or use of the material, they should be prescribed as part of the agreement. In many cases, however, this will add to the cost of the item, and one must be prepared to justify the added expense.

It is the writer's opinion that if the basic philosophies—free interchange of information, and honesty (not only the Vendor's but the Consumer's too)—are conscientiously observed, it makes relatively little difference what is put on a piece of paper.

How Much Inspection With Vendor Certification?



Assuming that a good certification program has been established, how much check should be put on suppliers to keep them honest. This, again, depends largely upon your frame of mind.

After a vendor has demonstrated his ability to supply a customer with product of satisfactory quality, and the user is convinced that the vendor is aware of the user's requirements and has adequate controls in his operation to meet these requirements, and the vendor is willing to certify that quality in his deliveries—then the user is wasting time and money if he continues his inspection effort at pre-certification levels.

There are numerous devices for reducing inspection activity without materially increasing risks. One of these is the use of limits on the estimated process average, based on the number of items inspected. If the estimated process average drops below the lower limit for a given AQL, reduced inspection may be instituted, providing a given number of consecutive lots (usually 10) have been accepted and the production is continuous.

Such a plan is described in Military Standard 105-A, and results generally in reducing the sample size to about 20% of normal. As quality performance by a Vendor continues at a high level, a control chart plan can be installed with a fixed single sample size regardless of lot size.

In using this type of control chart for incoming inspection, it is usually desirable to accept only by this plan. That is, as long as the points fall within control, the lots may be accepted, since the control chart does not indicate any significant change in quality. However, if a point falls outside of the control limit, it may be desirable to take the full sample prescribed by an attribute sampling plan for the AQL desired, before the lot is rejected.

If Vendor performance continues at a high level, the fixed sample size used with the control chart may be further reduced. However, it is not recommended that sample size be reduced below a minimum of 5 pieces.

Naturally, the final step in such a program is to eliminate all formal inspection and, under many circumstances, there is no reason why this cannot be done. Identification of each lot to make sure that the proper part has been shipped and that no apparent damage has occurred in shipment may be all the inspection that is necessary in many cases.

Under certain specific conditions, the inspection of one item may be all that is required for a sample. Take the case of a simple die-made part. After all the foregoing requirements have been met, there is little likelihood that any large variation between parts in a single lot will be encountered. In this case, the inspection of one part will serve to detect the defects as well as inspection of a large sample.

In short, in determining how much or how little inspection to perform on a lot of product, each case must stand on its own merits. A little time spent in the study of each case will pay big dividends.

In summary, then, Vendor Certification is a form of guarantee of the product by the Vendor. Its value depends upon the integrity of the Vendor and his complete knowledge of the Customer's requirements and problems. Many types of manufacturing costs may be reduced by Vendor Certification. These include inspection, material, production, and operating costs.

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For More Information Circle No. 158 on Inquiry Card—Page 17

Liability in the Case of Unauthorized Transactions

By Albert Woodruff Gray

A CONTRACT for the purchase of three carloads of grapes was made by a Kentucky buyer with the agent for a California fruit distributor. The agent exceeded his authority in stipulating the terms of the sale, and when the fruit was not shipped, the buyer purchased the grapes in the open market at an advance of $5,723.50 in price and sued the agent personally for the loss.

The court in awarding judgment against the agent for this loss, said: "A person who assumes to act as agent for another and to make a contract with a third party, thereby impliedly, if not expressly, represents that he is in fact authorized by his principal to make the contract, and if it proves to be unauthorized the agent will be liable."

The General Rule

A statement of this rule by a leading law text writer, that summarizes the decisions of the court throughout the country, is:

"The agent has been held in some cases bound personally where he contracts on behalf of a disclosed principal without authority, but if on a fair interpretation of the contract it appears that the intent was to bind the principal only, according to the great weight of authority, and the better view, the agent is liable, not on the contract but on an implied warranty of his authority based on his representation of authority."

Authority Is Implied

A letter signed by the vice-president of a corporation, to the owner of a factory plant in Illinois was, "We propose to purchase the Anna plant of your corporation as discussed today for the sum of $20,000 cash." To this the seller replied, "Our company accepts your proposition of the Anna property contained in your letter."

This purchaser, however, refused to perform the agreement, contending that the vice-president who had signed the letter containing this offer for the purchase of the property did not have authority to make the agreement. In the suit brought by the seller against this prospective purchaser for breach of contract, the Illinois appellate court said:

"The liability of an agent of a corporation purporting to act for it is no different from that of any other agent, and the rule is that an authorized agent purporting to enter into a contract for a principal is personally liable to the other contracting party.

"This has always been the rule of law in Illinois and is based upon the principle that where an agent executes a contract on behalf of a principal, the law implies a warranty on his part that he has authority to do that which he assumes to do and therefore, if he acts without authority or in excess of his authority, he is personally liable."

Contract of Employment

A decision that has been a guidepost for many years in determining these controversies arising from unauthorized attempts in the exercise of the authority of an agent, was made by the New York State Court of Appeals in a lawsuit involving the breach of an employment contract that had been executed under circumstances of this character.

An agreement was signed by the president of a corporation engaged in the financing of the purchase and sale of automobiles, with the manager of the Philadelphia branch of this company, that the manager would supervise the promotion of a subsidiary company for railroad and railway equipment financing in return for a liberal allotment of the stock of the proposed subsidiary.

Six months after this contract had been made the manager received a letter from the company signed by the president, saying:

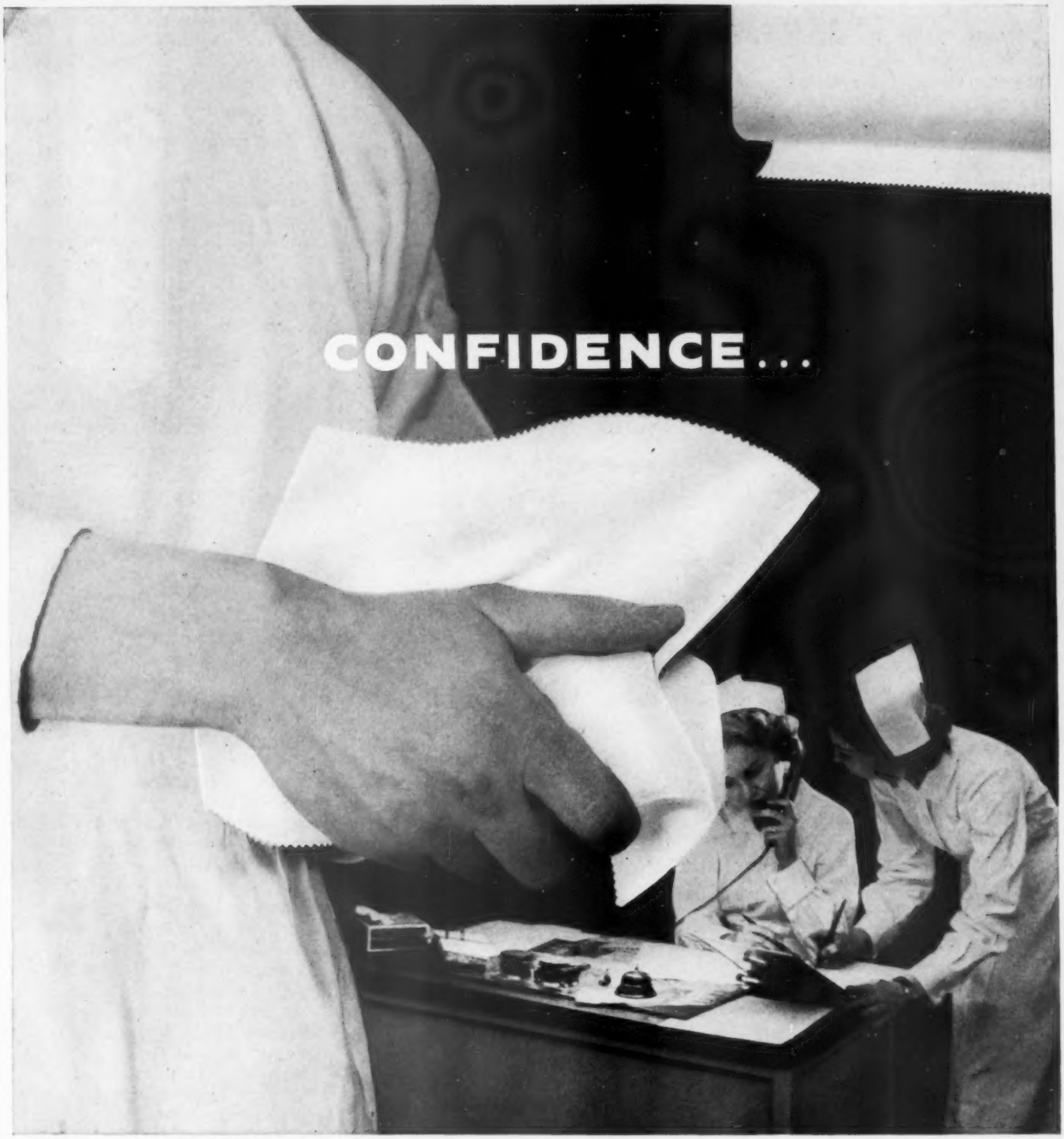
"We have made up our minds to drop the International Equipment Corporation as a separate enterprise. I appreciate the hard work you have been put to on the promotion of this company but as that work will no longer be required and as our policy is to cut off all expenses in connection with the solicitation of motor car business in the field, it seems necessary to dispense with your services."

A Legal Fiction

Action was brought against the president of the company personally after his authority to make this contract had been repudiated by the corporation. In its decision, the court said:

If the writer of this letter attempted to make a contract on behalf of the corporation without authority, then according to a long line of judicial decisions it is but just that the loss occasioned by there being no contract with the principal should be borne by the agent who acted without authority.

"As a device by which the loss may be placed upon the agent, the courts have held that a promise or warranty must be implied. The doctrine of an implied warranty is based upon a fiction and there is need of caution in determining the



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final consequences of a fiction.

"Much might be said both in favor of and against the various possible views of the nature of the warranty implied in law. These cases are of importance because they show a tendency in the courts to extend the implied promise till it gives protection against all damages which naturally flow from continued reliance upon the agent's assertion of authority. At present we give them no further effect.

"We hold only that where a person makes an assertion of authority to bind a principal which is intended and understood to be a continuing assertion, the warranty of the truth of that assertion, which the law implies, must from its nature be a continuing warranty."

Agent Exceeds Authority

A simple instance of this character occurred a few years ago in Wisconsin. The employee of a company owning a milling machine which it had advertised for sale, was told to take whatever bids were made for the purchase of the machine by those attending the sale. The employee exceeded his instructions and accepted a check for $1,250 in payment for the purchase of the machine.

Within a few hours after this check had been received, the owner of the machine returned the check, explained the mistake and repudiated the sale. This would-be purchaser sued the owner of the milling machine for damages for what it claimed was a breach of a purchase contract. The Wisconsin court, in denying a recovery to the purchaser, said of the liability of this employee for going beyond his instructions:

"A person who purports to make a contract, conveyance or representation on behalf of a principal whom he has no power to bind, becomes subject to liability to the third party thereto upon an implied warranty of authority, unless he has manifested that he does not make such warranty or the other party knows that the agent is not so authorized."

Two Exceptions Noted

The courts, however, have made two exceptions in the application of this rule that an agent exceeding his authority in making a contract is liable for a breach of warranty of his authorization to do so.

In the decision of an action in which no agency whatever existed and the person representing himself to be an agent was actually acting on his own behalf, an Ohio court said:

"Where the contract is entered into by an agent in the name of a non-existing principal, it would be a legal absurdity to assume that the agent intended to bind the principal who was not in existence.

"Under such circumstances the agent, having entered into the contract which, as a matter of legal presumption, he intends can be enforced, and it being manifestly impossible to enforce the contract against a principal who has no existence, it is assumed that the agent intended that the contract should be enforced against him."

An instance of the other exception to this general rule appears in the decision of a lawsuit before a New York court. That action had been brought for the breach of a purchase contract in which the buyer contended that the agent had represented it had authority, which it did not have, in the sale of two carloads of merchandise. Here the agent had received a telegram from its principal outlining the terms for the sale and had promptly showed the telegram to the buyer.

The court said in its decision of the buyer's action against this agent under these circumstances: "The buyer invokes the principle of law which gives one a right of action against an agent who assumes to make a contract on behalf of a principal which he in fact is not authorized to make. The basis of such an action is a breach of an implied warranty of authority.

"To the general rule giving such right of action there is an exception to the effect that the agent cannot be held liable if he fully disclosed to the person with whom he is dealing the limitations on his authority and discloses all the facts and circumstances with reference to the authority under which he assumes to act."

(*Please turn to page* 266)

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Williston on Contracts, sec. 282

Vulcan Corporation v. Cobdin Machine Works, 84 N.E.2d 173, Illinois

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Mickles v. Atlantic Brokerage Co., 204 N.Y.S. 571, New York

Baltzen v. Nicolay, 53 N.Y. 467

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For More Information Circle No. 160 on Inquiry Card—Page 17

A Tabloid History of FEDERAL PROCUREMENT

By H. C. Maaske, Deputy Regional Director, General Services Administration, San Francisco, Cal.

THE AUTHOR is a Nebraskan by birth and received his college education in that state, followed by the study of law at American University, Washington, D.C. He entered the Government service with the U. S. Forest Service in 1926 at Nebraska National Forest and Huron Forest, Mich. One of his early assignments was to organize and head a central supply system for the Forest Service at Milwaukee, and in 1940 he was appointed Chief of the nation-wide supply system. In 1943 he was selected to head the initial establishment, West Coast Supply Center, at San Francisco, under the Treasury Department's Bureau of Federal Supply. Since 1950, he has been Deputy Regional Director, Region 9, of the General Services Administration.

THESE brief, condensed historical background data have reference primarily to civilian agency procurement in the federal government—not military procurement. The significant milestones in procurement legislation across the years are cited to show how this activity has developed, and for better understanding of present day organization and regulations.

1775-1776. Prior to the Revolutionary War, England carried the supply burdens of the 13 Colonies. After the Declaration of Independence, the United States assumed its first purchasing and supply problems. Purchases were largely military, and were handled almost exelusively under the direction of General Washington.

1776-1792. Alexander Hamilton, first Secretary of the Treasury, is generally credited with having given initial thought to federal purchasing. On May 8, 1792, the first law regulating government procurement was enacted. The statute closed with the statement: "All other supplies or articles shall be purchased by or under the direction of the Treasury Department."

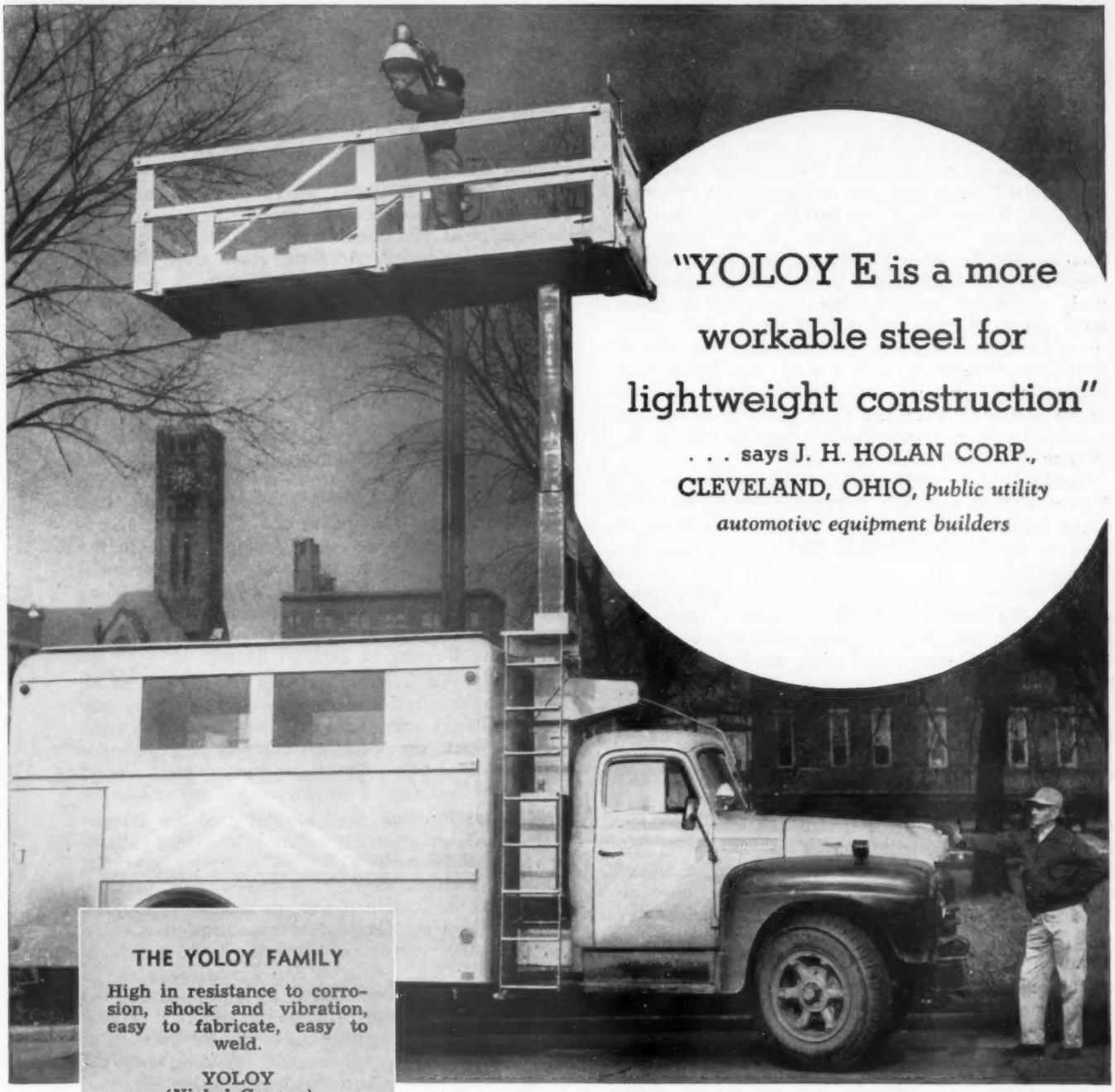
The head of the purchasing organization was called a "Purveyor" of Public Supplies. This term apparently stemmed from the old English custom whereby the party responsible for acquiring supplies for the King's household was called a "Purveyor".

Since Secretary Hamilton had the funds, it seemed logical that he also have responsibility for supplies. Thus was the purchasing function placed in the Treasury Department, where it rested, for apparently no other reason, for many years, including all the years that the old Procurement Division, Treasury Department, held forth in Washington, D.C., up to 1949.

1829-1860. Between 1829 and the Civil War, no significant or comprehensive purchasing and supply legislation was introduced or enacted.

1861-1868. Congress first recognized the need for basic statutes for certain areas of procurement. On March 2, 1861, the famous Section 3709 was enacted into law, requiring that at least three bids be sent out for each procurement. Seven years later (January 31, 1868) Section 3710 was passed, requiring that such bids be properly opened. Thus from Revolutionary War days to 1861, 85 years went by without any specific legislation on federal procurement matters.

1894. Congress created a Board of Awards. Its



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High in resistance to corrosion, shock and vibration, easy to fabricate, easy to weld.

YOLOY
(Nickel-Copper)
Low Alloy High Strength Steel

YOLOY E
(Nickel-Chrome-Copper)
Low Alloy High Strength Steel

YOLOY C
(Chrome-Copper)
Corrosion Resistant Steel

QUALITY YOUNGSTOWN SERVICE

● This utility body builder finds Yoloy E—Youngstown's low-alloy high-strength steel—an important time-and-money saver and product improver.

They report that Yoloy E is an easily "workable" steel. Once brake dies are set, there is remarkably little breakage and scrap.

Truck users also benefit. The high strength of Yoloy E permits the use of lighter gauge in bodies and equipment, providing reduced weight and increased payload. The exceptional rust-and-corrosion-resistance lengthens equipment life, reduces maintenance.

For information about Yoloy steels, write our nearest District Sales Office.

Youngstown

THE YOUNGSTOWN SHEET AND TUBE COMPANY *Manufacturers of Carbon, Alloy and Yoloy Steel*

General Offices: Youngstown, Ohio - District Sales Offices in Principal Cities

SHEETS - STRIP - PLATES - STANDARD PIPE - LINE PIPE - OIL COUNTRY TUBULAR GOODS - CONDUIT AND EMT - MECHANICAL TUBING - COLD FINISHED BARS - HOT ROLLED BARS - BAR SHAPES - WIRE - HOT ROLLED RODS - COKE TIN PLATE - ELECTROLYTIC TIN PLATE - RAILROAD TRACK SPIKES

For More Information Circle No. 161 on Inquiry Card—Page 17

chief function was to "carefully examine and compare bids, recommend acceptance or rejection". It could not decide or act beyond such recommendation, therefore was not very effective.

1905. The so-called Keep Commission was created. This Commission was appointed by President Theodore Roosevelt to review the entire purchasing problem. Named in honor of its Chairman, Charles H. Keep, an Assistant Secretary of the Treasury, the Commission made a comprehensive study and found, among other things, "an unnecessary variety of types and sizes of articles being purchased; a lack of definite specifications; lack of good inspection procedure; and a need for greater coordination of procurement activities." No concrete action stemmed from the Commission's study, and apparently its recommendations were in due course of time relegated to the archives.

Ironically, from 1905 until the Hoover Commission Report of 1949, a period of 44 years, about the same faults persisted and the same words were still being used to describe the Federal Government procurement situation.

1909. Congress created the General Supply Committee. This was a Committee separate from the Purveyor in the Treasury Department. About this time it released the first of what came to be known as the Federal Supply Schedules.

1912. The Davis-Bacon Act was passed, making provision for an 8-hour day and regulating against any "kick-back" from employee to employer involving government contracts in excess of $2,000.

1916. Congress created the World War I Industries Board, headed by Bernard Baruch. Its functions were on a smaller scale, but for much the same purpose as the familiar War Production Board and similar government bodies in connection with World War II priorities, logistics, supplies, price controls, rationing, etc.

1921. By this time, World War I was over, and Uncle Sam found himself for the first time with a major job of disposing of surplus property. Partly to handle such disposition, and partly to utilize the services of an excess number of Generals and Admirals left over from the war, an Area Coordinating Service was created. The country was sliced up into six areas, with a military officer as the area head. The purpose was to provide a sort of gigantic Government "Robin Hood", taking property from those who had but did not need, and give it to those who needed but did not have. Apparently not too complete a job was done, for 12 years later, in 1933, and even when World War II began 19 years later, some of the surplus from World War I was still found in government warehouses here and there.

1923. By this time, as much of the surplus property as could be used had been transferred; several of the Generals and Admirals had retired or deceased; and the Area Coordinating Service was abolished. It was replaced, in part, by the Federal Business Men's Associations, whose functions were primarily:

1. Distribute surplus property;
2. Help federal agencies with their office space problems;
3. Furnish trucks to Postmasters for Christmas mail; and
4. Constitute a sort of stand-by federal agency assembly for possible need in event of a major civilian disaster.

The Federal Business Men's Associations have continued at some locations through the years, but their original functions have since been absorbed by General Services Administration, Civil Defense Administration, etc.

1929. General Supply Committee functions were broadened to include purchase and distribution of commonly used supplies among federal government agencies in Washington, D.C. Construction of the first such supply warehouse was authorized, at Washington.

1933. The Buy American Act was passed on March 3, 1933. This provided that only materials and supplies mined or manufactured substantially in the United States would be acquired for public use.

The purchase functions in the Treasury Department were given a new and stronger place in the government supply system, and the Procurement Division was created. The functions of the old General Supply Committee were transferred to the Procurement Division. This Division was later renamed the Bureau of Federal Supply.

1936. The Walsh-Healy Act was passed on June 30, 1936. This required government contractors to pay the established minimum rate per hour for eight hours of work, and overtime (usually 1½ times the regular 8-hour rate) for all work over eight hours. It also provided against employment of convict labor.

1942. The functions and authority of the Bureau of Federal Supply were broadened, including authority for establishment of Federal Supply Centers at strategic locations throughout the country, to store and distribute common-use government supplies among the federal agencies in their respective areas. The first such supply center authorized outside of Washington, D. C., was at San Francisco, Cal., in May, 1943. It was established by consolidating the warehouses, stock, and personnel of the U. S. Forest Service and two other Bureaus of the Department of Agriculture, later supplemented by absorbing the supply functions of Central Administrative Services.

Thus it will be seen that from 1776 to 1942, a period of some 166 years elapsed between the time that Uncle Sam had his first supply problems to the time when he authorized a nation-wide network of supply centers to handle the procurement and distribution of common-use items among federal agencies. During these 166 years, the United States spent $16½ billion dollars for supplies. Just for comparison, in the 3-year period 1946-1949, the United States spent $177 billion, or ten times as much as in the previous 166 years.

1947. The Armed Services Procurement Act was passed. This law deals comprehensively with military procurements, and does not involve civilian agency procurements.

In the same year, the so-called Hoover Commission was created for the purpose of studying, among other things, the entire supply, space, and records problems of the United States Government.

1949. Public Law 152, Federal Property and Ad-

(*Please turn to page* 260)

Ansul Dry Chemical Piped Systems Now U.L. Approved For Industry-wide Use

For the first time, Automatic Dry Chemical fire protection for class B and C hazards

The science of fire protection took a big step forward when Ansul's *Dry Chemical Piped System* was approved by Underwriters' Laboratories. Eight years of development and field application made this important approval possible.

Ansul's Dry Chemical Piped Systems provide instant, around-the-clock protection for such hazards as paint dip tanks, spray booths, generators, flammable liquid pumping stations, exhaust ducts—wherever there is a hard to reach or highly flammable stationary installation.

Automatic or manual systems, or a combination of both, are available. Also, by using automatic selector valves, one piped system can protect two or more separate hazards.

Protecting a hazard with an Ansul Dry Chemical Piped System will, in most cases, result in increased insurance savings. Protect your business, safeguard your investment, get in touch with your Ansul Man today.

LISTED UNDER REEXAMINATION SERVICE UL UNDERWRITERS' LABORATORIES, INC.

Call the Ansul Man!

Get in touch with your local Ansul man through the "yellow pages" or write ANSUL CHEMICAL COMPANY, Fire Equipment Division, Dept. F-84, Marinette, Wisconsin. *Write Ansul for your copy of new Fire Equipment Catalog.*

ANSUL

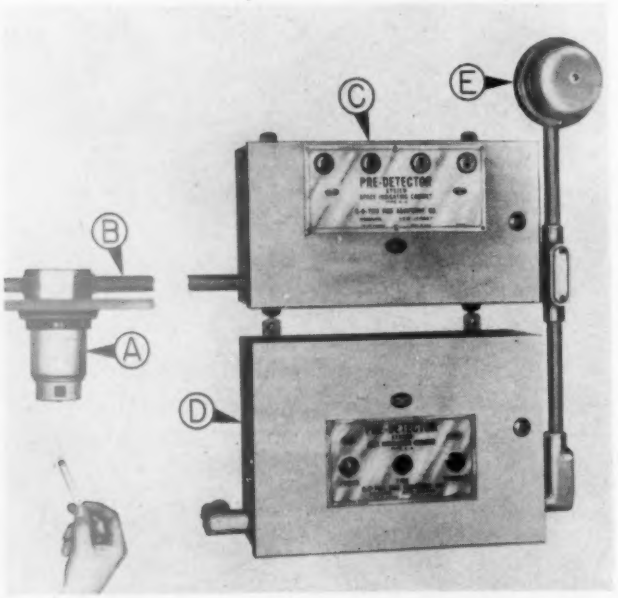
For More Information Circle No. 162 on Inquiry Card—Page 17

New Products Ideas

You can get more information on any new product shown in this section. Just check the number that follows each item and circle the corresponding number on the Inquiry Card, page 17. Drop the card in the mail and we'll do the rest.

New Warning System Uses Radioactive Materials to Detect Fires Independent of Smoke or Heat

A BRAND new means of detecting fire in the early stages, without dependence on visible smoke or heat for actuation, has been developed by Pyrene-C-O-Two Equipment Co., Newark, N. J. The radio-active, automatic, pre-detector system gives visual and audible alarms within seconds after the ignition of various type fires. With pre-detector heads, containing the radioactive element, spaced on centers up to 60 feet apart or up to 30 feet from side walls, the system can quickly detect the smallest smoldering fire and indicate the location where it occurs. It can also alert the public fire department and perform any number of functions to keep fire damage at a minimum.



Schematic arrangement of C-O-Two Pre-Detector System, here being activated by cigarette smoke, has three principal units: pre-detector head (A), space indicating cabinet (C), and fire indicating cabinet (D). Electrical conduit (B) and alarm bell (E) virtually complete assembly. Space indicating cabinet, which may be used when two or more pre-detector heads are installed, shows location of fire in building, while fire indicator gives visual alarms for fire, power failure, or system disturbance.

The heart of the system is an overhead detection device, electrically connected to a fire indicating cabinet. Each head contains a highly sensitive gas discharge (cold cathode) tube, plus two independent chambers. One of these is exposed to the atmosphere and the other virtually sealed from the atmosphere. A minute source of radio-active material is mounted in each of these chambers, and the radiation ionizes the air in the respective chambers causing it to become electrically conductive.

Each chamber is adjusted to give equal voltage when combustion gases or smoke are non-existent. However, when combustion gases or smoke are present the balance no longer exists. The chamber exposed to the atmosphere rapidly changes its condition, causing the tube to become electrically conductive. This, in turn, operates a relay either in a space-indicating cabinet, if such is used, or in a fire-indicating cabinet. The pre-detector head is designed to be attached to a standard 4″ round electrical conduit box and each one can be adjusted to its own sensitivity without affecting the others in the circuit.

Where it is desirable to know the location of the fire, a space-indicating cabinet can be connected through separate circuits, each circuit containing the necessary number of heads to cover specified locations. Up to four separate circuits can be connected to one space-indicating cabinet and four of these can be connected to the fire-indicating cabinet, making a total of 16 separate circuits or spaces being handled by one system. The space-indicating cabinet shows visually by number the area affected. It contains relay contacts which will shut down

(*Please turn to page* 130)

SUN'S MORE THAN 400 INDUSTRIAL PRODUCTS SPEED PRODUCTION . . . CUT COSTS

An untapped source of increased profits for industry lies in the thoughtful selection of industrial petroleum products.

Whatever you need...whether it's a cutting oil to help give smoother surface finishes to airplane parts...a tractor lubricant to insure against breakdowns during harvest time...or a fuel oil for a diesel locomotive...Sun can recommend exactly the right product to help you reduce operating costs to an absolute minimum.

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INDUSTRIAL PRODUCTS DEPARTMENT

SUN OIL COMPANY

Philadelphia 3, Pa.

In Canada: Sun Oil Company, Ltd., Toronto and Montreal

SUNOCO®

For More Information Circle No. 163 on Inquiry Card—Page 17

(*Continued from page* 128)
ventilation, activate a fire extinguishing system, or perform other functions in the affected space.

The big advantage with this revolutionary system is that invisible combustion gases as well as smoke from fire, either of a small smoldering nature of a fast free-burning nature, will sound an alarm. Furthermore, dust and soot causes only negligible changes in sensitivity and low temperature or humidity have no adverse effects on its operation.

Circle No. 41 on Inquiry Card—Page 17

Lathe Easily Changes Spindle Drives

Rockwell Mfg. Co., Delta Power Tool Div., 400 N. Lexington Ave., Pittsburgh 8, Pa., announces that it is entering the metalworking lathe field with the introduction of an 11″ cabinet model variable speed drive lathe. It has a 24″ capacity center to center and 1″ collet capacity. Diameter of hole through the spindle is 1⅜″. There is a patented back gear shift lever, located on the front of the machine within easy reach of the operator at all times.

Circle No. 42 on Inquiry Card—Page 17

Collet Can Be Used With Broken Drills

A collet, type 200-3, featuring a ¼″ - 28 threaded shank which screws directly into the spindle of small angle heads, has been announced for use with broken drills. The collet requires no adapter and since the drill bit can be broken to a minimum length, the usual "overhang" of the drill and the chuck at the end of the angle head is greatly reduced. The collet is adaptable to drills in the size range from #50 to #26 inclusive. It is a product of Ritmar Corp., Huntington, N.Y.

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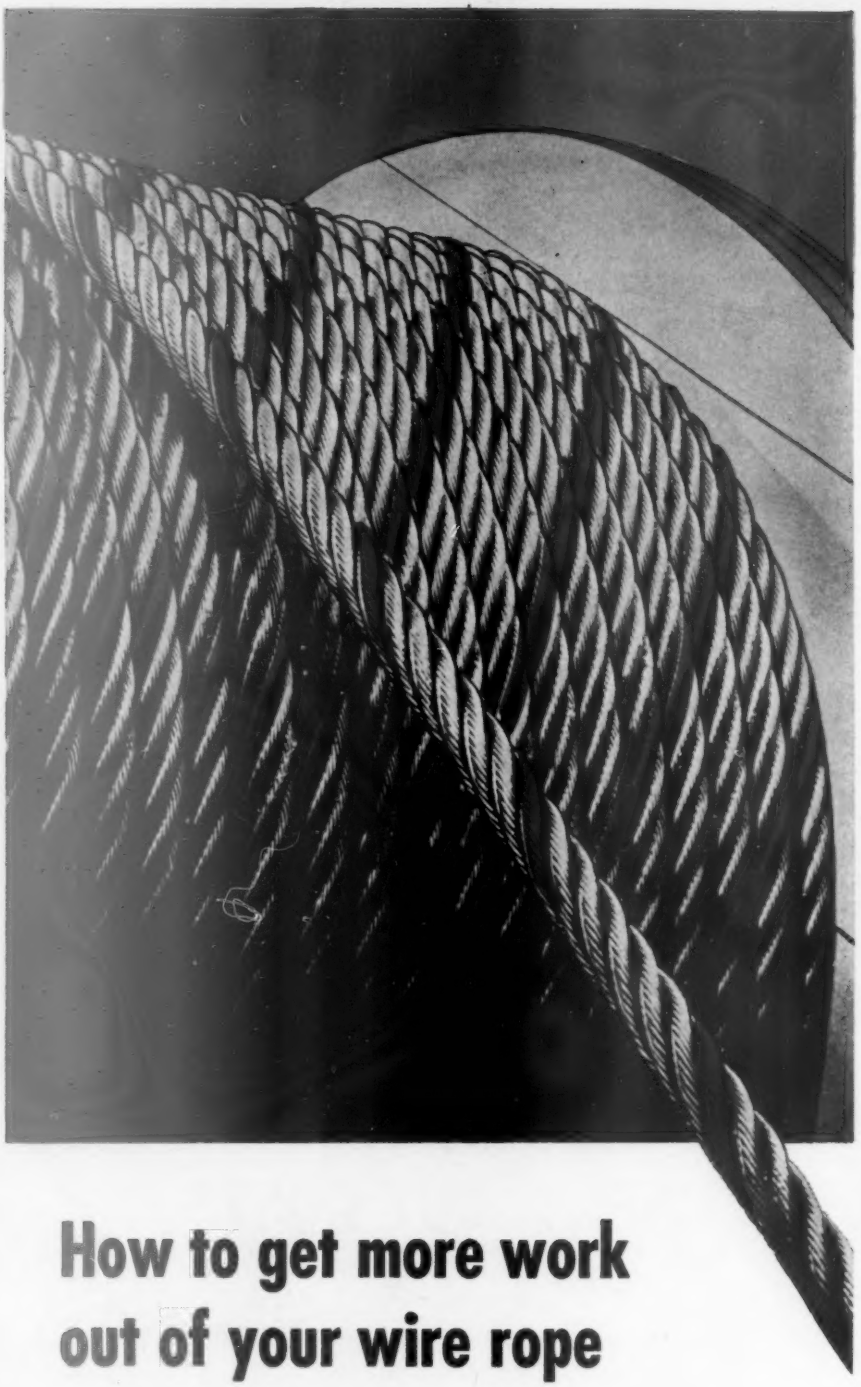


How to get more work out of your wire rope

Get *higher-than-rated quality.*
Get *longer-than-expected service.*
Use Hercules Red-Strand.
It costs no more.

LESCHEN from leading distributors

HKP HERCULES Red-Strand® WIRE ROPE

LESCHEN WIRE ROPE DIVISION
H. K. PORTER COMPANY, INC.
St. Louis 12, Missouri

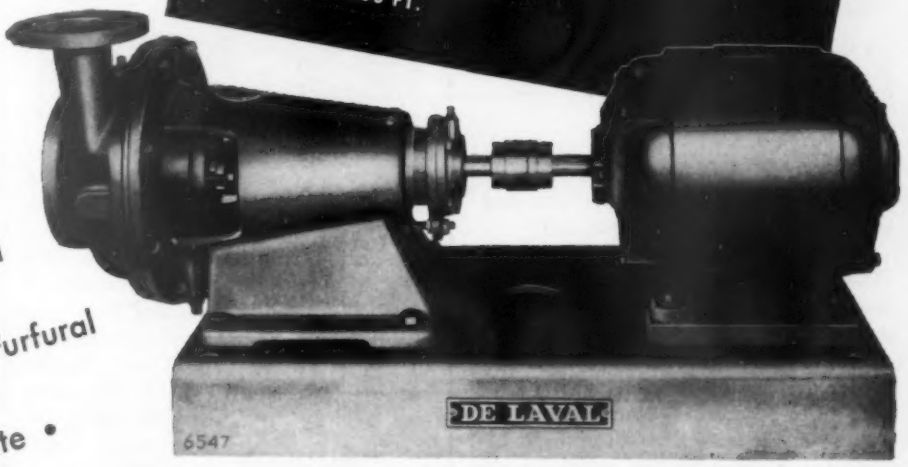
For More Information Circle No. 164 on Inquiry Card—Page 17

• Calcium chloride brine • Flushing liquor • Sodium sulphate • Asbestos fiber & cement mix • Green liquor • Soap solution • Grinder coolant • Carbon slurry • Cane wash • Salt brine • Sea water • Caustic solution • Bleach liquor • Grape juice concentrate • Tomato juice concentrate • Tomato puree • Propanol • Soap liquor • Cane juice • Aqueous lime • Coke oven oil • Paper stock • Waste sulphite liquor • Alkylaryl sulfonate • Sugar liquor • Vinyl pyridine • Saturated brine • Grape juice • Tomato juice • Press liquor • Calcium bisulphite • Melt Phenolized ammonia • Ammonia liquor • Sulphuric acid • Paraffine oil and water • Sludge • Milk waste • Gritty water • Cane syrup • Lime & soda solution • Cachaza • Clear juice White water • Mineral oil • Chromic acid Cement • Gasoline • Depanol Brine • Vegetable oil • Licorice liquor • Flume water • River water • Benzine thinner • Mash Methylene chloride • Sodium hydroxide Sizing solution • Alcohol • • Steep soda • Caustic soda Black liquor • Ethylene glycol • Fuel oil • Furfural • Condensate •

One pump handles all these liquids...

DE LAVAL CPO PROCESS PUMP

CAPACITIES TO 2,000 GPM
HEADS TO 200 FT.



WRITE FOR BULLETIN 1125-B

DE LAVAL *Centrifugal Pumps*

DE LAVAL STEAM TURBINE COMPANY
807 *Nottingham Way, Trenton 2, New Jersey*

DL 281

with
G-E
Watch Dog*
STARTERS

Dithering, flickering fluorescent lamps are costly — *even more than human fatigue is involved.* Lamp ballasts and starters also are being overworked.

G-E Watch Dog starters *stop* this waste. When a lamp reaches the end of its useful life and starts to flicker, the Watch Dog starter automatically cuts it out of operation until it is replaced with a new lamp.

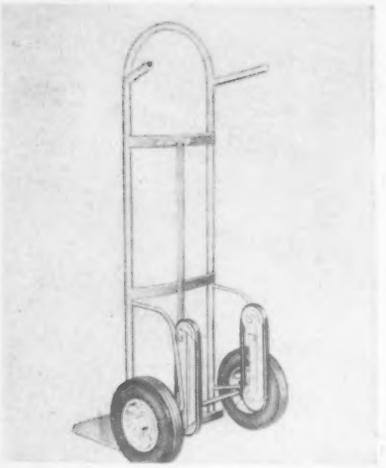
Moreover, one Watch Dog starter outlasts up to 10 ordinary starters. And for pennies more, lamp life will actually be increased as much as 25% to 50% with the NEW FS-400 Watch Dog Starter. Wiring Device Department, General Electric Company, Providence 7, R. I.

*Registered Trade-mark of General Electric Co.

GENERAL ELECTRIC

For More Information Circle No. 165
on Inquiry Card—Page 17

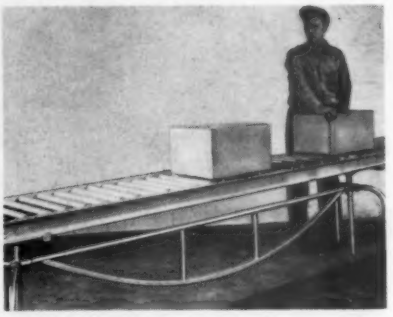
Trucks Won't Damage Stairs With Finished Surfaces



Nutting Truck & Caster Co., Faribault, Minn., says that its newly introduced line of trucks have their glide assemblies equipped with rubberized fabric V-belts which will not mar stairs. For less effort going up or down, the glide assemblies are positioned to permit a smooth movement parallel to slope of curbs or stairs, rather than the intermittent raising and lowering of the load as with conventional glides. These trucks handle cases, crates, cartons, kegs, bags, drums and barrels.

Circle No. 44 on Inquiry Card—Page 17

One Man Can Set up, Dismantle Magnesium Conveyor



Introduction of a portable roller conveyor, constructed entirely of magnesium, has been announced by Magline Inc., of Pinconning, Mich. The units weigh from 15% to 40% less than comparable equipment of similar size and capacity. They are suitable for permanent installation or for portable use. They can be set up or dismantled by one man and greatly facilitate conveyor job spotting in plants and warehouses. They are available in two capacities: 500 lb. and 900 lb. Roller sizes range from 12″ to 20″. The units can be supplied as a complete system or supplied in individual sections, with couplers to match existing systems.

Circle No. 45 on Inquiry Card—Page 17

Showing a hosiery manufacturer how he could mark his boxes with variable detail in half the time required by hand stamping —and get far better imprint quality besides—typifies the way the Markem Method works. Markem studies the needs — recommends the right machine, type and ink for the job, follows up with installation, operator instruction, maintenance and supply. In marking textiles, tools and hardware; shoes and leather products; plastics and pharmaceuticals; electrical components and clothing—the Markem Method results in better marking. Find out how it can benefit you, by writing Markem Machine Co., Keene 34, New Hampshire.

MARKEM ...TO MAKE YOUR MARK

For More Information Circle No. 166
on Inquiry Card—Page 17

Whatever the job...

PERMACEL 32
PLASTIC TAPE

marking or masking

PERMACEL 77
MASKING TAPE

SELF-STICKING

PERMACEL® TAPES

In our complete line, there's a self-sticking tape for every job . . . write Permacel Tape Corporation, New Brunswick, N. J.

a Johnson & Johnson company

For More Information Circle No. 167 on Inquiry Card—Page 17

Wherever metal is processed,

Cleanliness is more than a Virtue—

—it's a necessity!

Hard-to-remove soils such as oil, grease, heat scale, smut, and tarnish are necessary evils of the metal processing industry. Each is characteristic of some phase of metal fabrication; each must eventually be removed for quality end-results.

To meet industry's ever-growing need for more efficient cleaning materials to remove these and other types of soils, Oakite offers more than 70 specialized metal cleaning detergents—each quality-compounded for quality results. Listed below are just a few of the many metal cleaning jobs for which specialized Oakite detergents are available. Check those that interest you; then call in your local Oakite Man. Let him demonstrate for you why every day more and more metal fabricators rely on Oakite for perfect cleaning results.

Specialized Oakite detergents available for:

- Heavy duty tank cleaning
- Machine cleaning ferrous metals
- Machine cleaning non-ferrous metals
- Electrocleaning steel
- Electrocleaning non-ferrous metals
- Preparing metals for painting
- Steam-detergent cleaning
- Machining and grinding lubricants
- Pickling
- Deoxidizing
- Bright dipping
- Rust removal
- Paint stripping
- Barrel finishing
- Burnishing
- Descaling

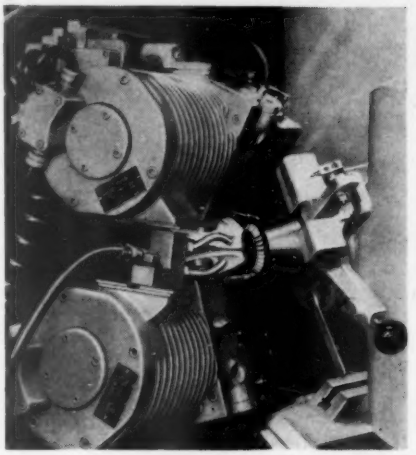
FREE: Would you like a comprehensive 44-page guide that gives complete details on these and many other metal cleaning techniques? Oakite has just such a book available—yours FREE without obligation. Simply ask your Oakite Man for a copy, or write Oakite Products, Inc., 54 Rector Street, New York 6, N. Y.

SPECIALIZED INDUSTRIAL CLEANING
OAKITE
MATERIALS · METHODS · SERVICE
SCIENCE

Technical Service Representatives in Principal Cities of U. S. and Canada

For More Information Circle No. 168 on Inquiry Card—Page 17

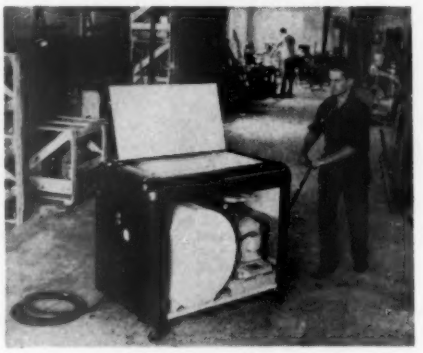
Grinder Produces Straight Bevel Coniflex Gears



Gleason Works, 1000 University Ave., Rochester 3, N. Y., has on the market an automatic wet-type grinder for high speed production of straight bevel Coniflex gears. The machine, No. 125, produces gears up to 8½″ pitch diameter, 1⅜″ face width, and 3 DP. All standard pressure angles can be ground. Fine pitch gears are ground directly from the solid blank. Gears coarser than approximately 20 DP are ground after cutting and hardening.

Circle No. 46 on Inquiry Card—Page 17

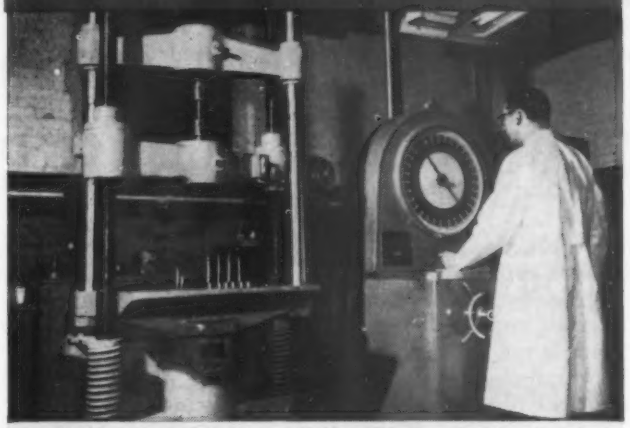
Movable Vacuum Pump Can Be Trundled by One Man



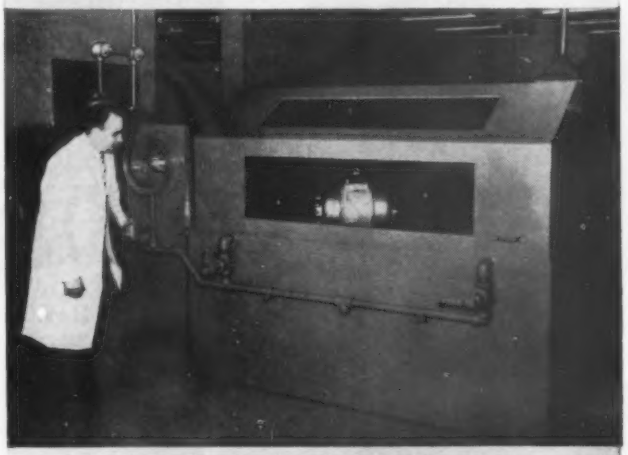
Designed for hundreds of industrial uses, a vacuum pump manufactured by Vacuum Forming Corp., Port Washington, N. Y., is said to be first and only movable unit available. It has ball-bearing wheels on swivel casters, to permit effortless trundling by one man. When it is pushed into place, it is connected by a heavy duty hose to whatever equipment is to be used in the vacuum application, such as presses, sealers, molding units, etc. In contrast to stationary pumps that must be attached to a single piece of equipment, the pump wagon can be used at numerous spots as production needs dictate.

Circle No. 47 on Inquiry Card—Page 17

CROUSE-HINDS rigid quality control *assures long-lasting products ...* CONDULET* records prove it!



Making a tensile strength test of a Feraloy bar in the Mechanical Laboratory. Constant testing insures uniform quality.



A hydrostatic test of a Type EPC explosion-proof Condulet. It must withstand a pressure 4 times as great as an internal explosion.

The first CONDULETS, introduced by Crouse-Hinds in 1905, were so well designed and so carefully manufactured that many of the early installations are still in use.... still giving dependable service after more than forty years. This record proves that where quality counts, you can count on CONDULETS!

Crouse-Hinds high standard of quality has always been controlled by careful checking and testing of both raw materials and the finished product. The CONDULET line has expanded from a few items to more than 15,000 types and sizes and the testing laboratories have kept pace with this development. They contain the latest and most modern testing equipment.

Laboratory testing is only part of Crouse-Hinds system of rigid quality control. Factory inspection is equally important. Together, they assure a superior product that will serve you better . . . and last longer!

Always specify CONDULETS.

***CONDULETS are made only by CROUSE-HINDS**

CROUSE-HINDS COMPANY
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OFFICES: Amarillo — Birmingham — Boston — Buffalo — Chicago — Cincinnati — Cleveland
Dallas — Denver — Detroit — Houston — Indianapolis — Kansas City — Los Angeles — Memphis
Milwaukee — New Orleans — New York — Philadelphia — Pittsburgh — Portland, Ore.
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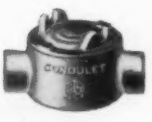
RESIDENT REPRESENTATIVES: Albany — Atlanta — Baltimore — Charlotte — Chattanooga
Corpus Christi — Reading, Pa. — Richmond, Va. — Shreveport
Crouse-Hinds Company of Canada, Ltd., Toronto, Ont.

Type LB
Obround Condulet

Type EVA Explosion-Proof
Lighting Fixture



Type GUAC Explosion-Proof
Junction Condulet

Type ARE
Plug Receptacle

Type FSC Tumbler
Switch Condulet

CONDULET
First in the field
STANDARD OF QUALITY

A Nationwide Distribution Through Electrical Distributors

AIRPORT LIGHTING · FLOODLIGHTS · CONDULETS · TRAFFIC SIGNALS

For More Information Circle No. 169 on Inquiry Card—Page 17

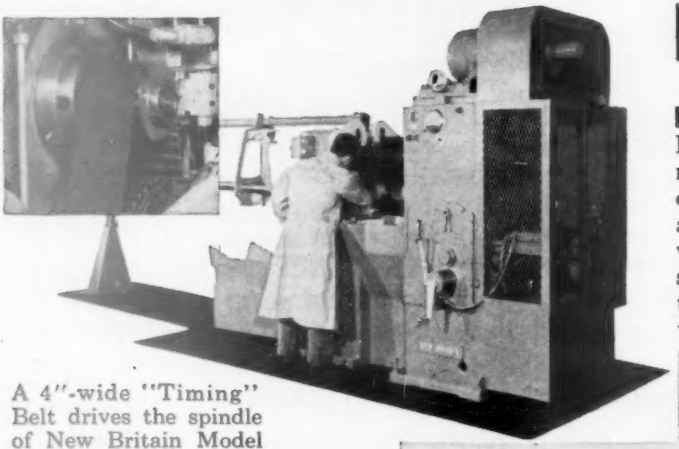
Here's How the Revolutionary

Gilmer "TIMING"®

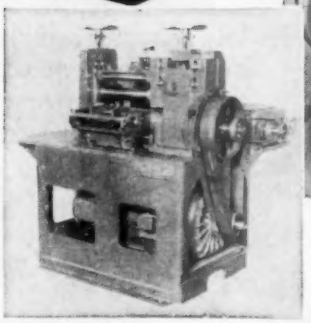
has been enthusiastically adopted by America's

MACHINE TOOL INDUSTRY

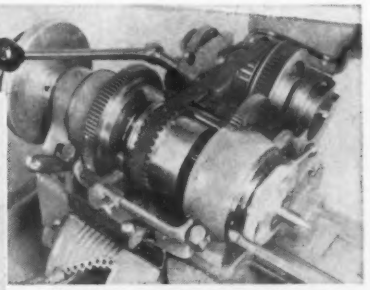
MACHINE TOOL designers have found in the Gilmer "Timing" Belt Drive a superior means of transmitting power more quietly, more efficiently, more economically, with more precise synchronization, and at constant angular velocity. On metal cutting and grinding machines the "Timing" Belt Drive has shown the way to minimize vibration and tool chatter, resulting in finer surface finish. Shown here are only a few representative machine tools now making use of Gilmer "Timing" Belts on their most vital drives.



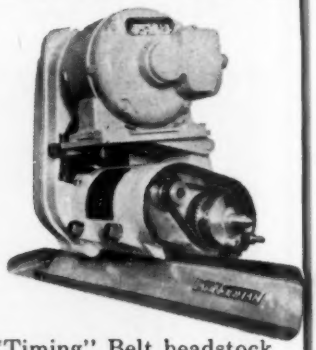
A 4"-wide "Timing" Belt drives the spindle of New Britain Model 126 Automatic Bar Machine.



Ruesch #149 Gang Slitter employs 3 *stock* "Timing" Belt Drives from 20 HP motor.

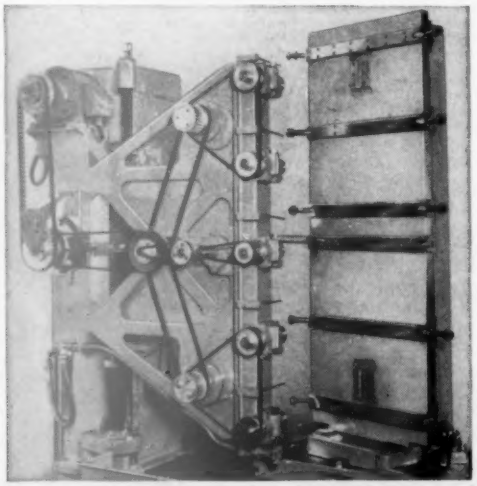


Wade Precision Lathe uses "Timing" Belt spindle drive.



"Timing" Belt headstock drive on Van Norman Radial Grinder permits finer finishes.

Eight "Timing" Belt drives provide excellent carbide tool life and finishes on Pratt & Whitney Duplicator.



"Timing" Belts are used to drive Waterbury-Farrel Screw Head Slitting Machine.

NEW YORK BELTING & PACKING CO. • Founded 1846

NYB & P

BELT DRIVE

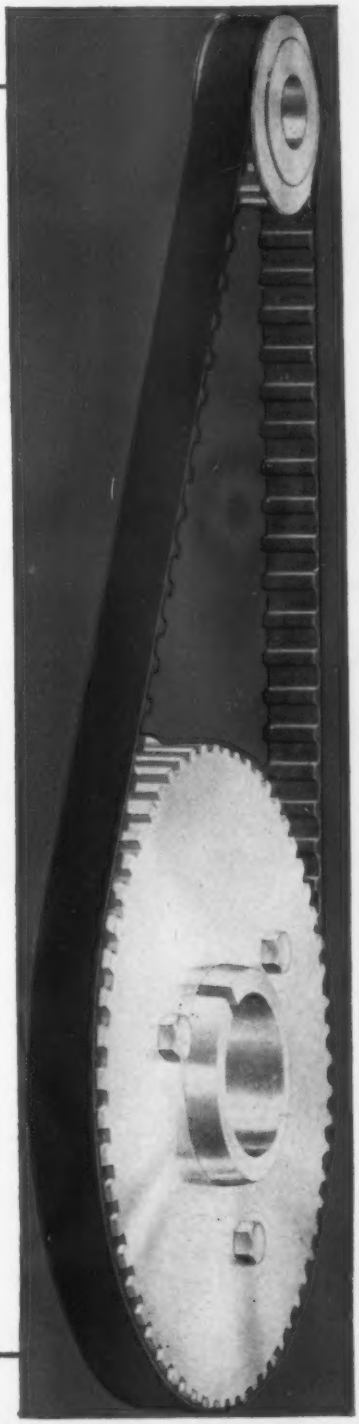
Industry's New Power-Transmitting Medium

Sweeps away design restrictions

In one application after another, "Timing" Belt Drives have enabled machine designers to achieve basic engineering improvements—or to design entirely new machines—that were previously either impractical or impossible! For never before has there been a *positive drive* that combined all these desirable characteristics:

- **Requires no lubrication, no housings or lubricant guards.**
- **Maintains precise synchronization ("timing") between shafts.**
- **Provides speed ratios as high as 15 to 1 in a single step.**
- **Operates satisfactorily at speeds from inches per hour to 15,000 fpm.**
- **Permits use of very small diameter pulleys for ultra-compact drives.**
- **Has nearly 100% mechanical efficiency.**
- **Needs no initial tension. Lighter bearing loads permit lighter bearings.**
- **Does not stretch or lengthen with use; requires no take-up.**
- **Can be designed for zero backlash.**
- **Capacity ranges from 1/100 to 300 horsepower.**

These are but a few of the unique features of this amazing tooth-grip belt drive that is already in successful use on hundreds of thousands of machines. Full details and description are given in the 76-page Gilmer "Timing" Belt Manual, which lists hundreds of drives available promptly from stock. For your copy, call your nearby Gilmer "Timing" Belt Distributor. Or, if he isn't listed in the classified telephone directory, write to the address below.



NEW YORK BELTING & PACKING CO. 1 Market St., Passaic, N. J.

America's Oldest Manufacturer of Industrial Rubber Products

For More Information Circle No. 170 on Inquiry Card—Page 17

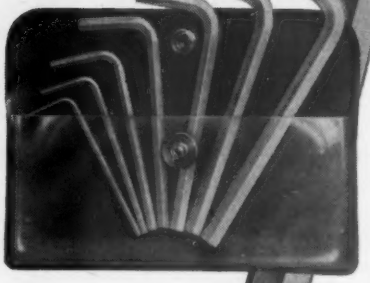
ALLEN HEAD

ALLEN KEYS

New bright finish
New kit
Lower prices**

Now the hex keys furnished in Allen key sets have a high luster coating — better looking — rust resistant — makes size markings easier to read.

Available in six sets, all packaged in new red-trimmed plastic envelopes.



No. 603	11 short arm keys	3/32″ through 5/8″
*No. 604	7 short arm keys	5/64″ through 1/4″
*No. 605	6 short arm keys	.050″ through 5/32″
No. 606	11 short arm keys	.050″ through 3/8″
No. 614	11 long arm keys	3/32″ through 5/8″
*No. 616	9 extra long arm keys	5/64″ through 3/8″

*Bright Coated Keys **On Nos. 604 and 605

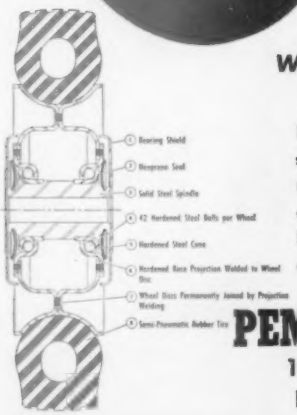
Order from your Allen Industrial Distributor or write us for bulletin C38 for your files.

ALLEN Manufacturing Company, Hartford 2, Connecticut, U.S.A.

For More Information Circle No. 171 on Inquiry Card—Page 17

Good News No "Price Premium" for Pemco SEALED Ball Bearing... Caster Wheels

- **NEOPRENE SEAL** keeps dirt out and grease in—easily replaced at minimum cost
- **PRE-PACKED** with special grease to withstand temperature extremes—resists oxidation
- **FREE WHEELING** insured by minimized seal friction
- **ECONOMICAL** service-free durability formerly found only in high priced units
- **SWIVEL CASTERS** feature two rows of load carrying balls for closer alignment, easier operation



Write today for FREE CATALOG

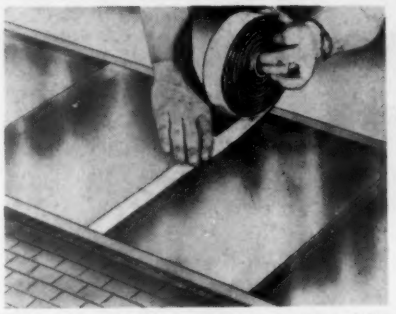
Pemco Wheels, like Pemco Casters are designed for superior service under the most punishing conditions. Pemco can handle your requirements and assure greater success.

PEMCO WHEEL CO.
1882 Ravine Road
Kalamazoo, Mich.

Eastern Rep., OSCAR M. STANLEY, Inc. . . 202 E. 44th St., New York 17, New York
Western Rep., ROLLAIR ENGINEERING CO. . . . 905 Air Way, Glendale, California
Florida Rep., J. K. KESSLER & ASSOC. . . 3313 W. Sevilla Circle, Tampa 9, Florida

For More Information Circle No. 172 on Inquiry Card—Page 17

Putty in Tape Form Aids Quick Mending of Skylights



Penna Laboratories, Franklin Park, Ill., are now marketing a plastic putty in tape form for factory or industrial plant skylights. The compound is dark green in color, plastic, non-hardening, and comes in a 12½ foot roll. The tape itself is 1⅞″ in width. The putty is mounted on non-corrosive metal foil. To apply, the roll is simply placed over the rafter bar and rolled back, using the finger of one hand as a spool holder and fingers of the other hand to stamp down as the material is unwound.

Circle No. 48 on Inquiry Card—Page 17

Chain Hoist Needs No Maintenance

An electric chain hoist, designed to serve for its normal life without maintenance has been introduced by Chisholm-Moore Div., Columbus McKinnon Chain Corp., Tonawanda, N. Y. The hoist has shock-proof push button control, sealed-in lifetime lubrication, self - adjusting heavy duty brake, overload protection, fully enclosed and protected components and extremely compact size and low headroom. A unique jam-proof chain guide and non-kinking flexible link permit the hoist to be used for extreme angle pulling. The hoist is available in capacities from ⅛ to 1 ton for operation on single phase 115 v and 3 phase 208-220/440 v.

Circle No. 49 on Inquiry Card—Page 17

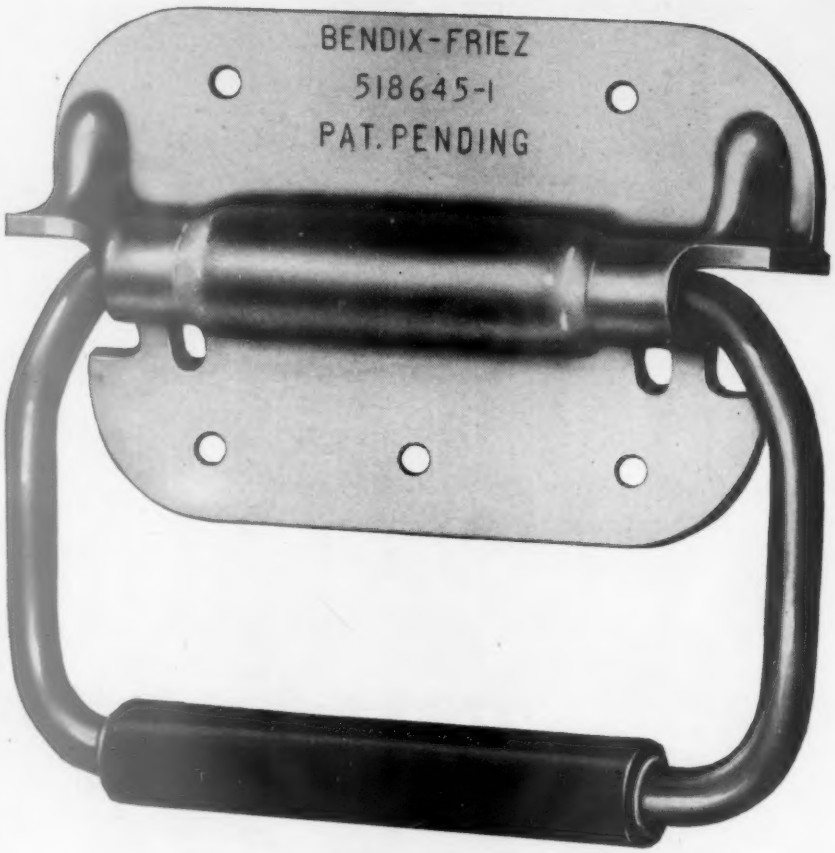
Our extruders have turned out enough plastic and rubber extrusions to reach to the moon and halfway back. In compiling this vast experience General Tire's Industrial Products Division has supplied thousands of original equipment manufacturers with just about every known type of extrusion. No job is too large, too small or too complicated for our design and production staff. Perhaps *you* can benefit from the fantastic extrusion mileage we've accumulated down through the years.

For literature or further information write to The General Tire & Rubber Company, Wabash, Indiana, Department C

THE GENERAL TIRE
Industrial Products Division
WABASH INDIANA

"From Plans to Products in Plastics and Rubber"

For More Information Circle No. 173 on Inquiry Card—Page 17



BIG NEW HANDLE

Meets specifications of MIL-C-4150-A and MIL-T-945-A. Grasping handle has insulating sleeve that will not crack or chip at −65° F. or become sticky or tacky at +160° F.

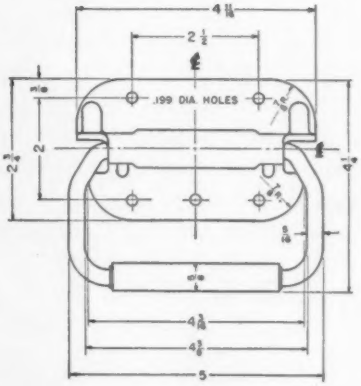
If you have a carrying case problem, please read this.
It's all about a new kind of handle.

It's a rattle proof handle
A reclaiming spring forces the grip down against the surface and holds it firmly in place.

It's sturdy and safe
It has a "snap-back" feature ideally suited for many uses in industry where conventional type handles are not satisfactory. It is strong enough to lift 200 pounds with an adequate safety factor. Fingers are free from pinching.

Corrosion proof
Made of carefully selected materials which are treated to provide maximum resistance to rust and corrosion.

Easily applied
Nuts and bolts, welding or other suitable fastening may be used as long as the surface to which it is attached is as strong as the back of the plate handle.



Bendix - Friez

FRIEZ INSTRUMENT DIVISION OF BENDIX AVIATION CORPORATION
1456 TAYLOR AVENUE, BALTIMORE 4, MARYLAND
Export Sales:
Bendix International Division, 205 E. 42nd St., New York 17, N. Y., U. S. A.

For More Information Circle No. 174 on Inquiry Card—Page 17

Aluminum-Coated Fabric Reflects Radiant Heat

Minnesota Mining & Mfg. Co., 900 Fauquier St., St. Paul, Minn., is manufacturing an aluminum-coated fabric for use in protective garments for industrial "hot jobs." It protects the wearer by reflecting radiant heat, instead of insulating against it. It gives workers better protection, allowing them to work in the heat for longer periods. In addition, the new material is flexible and weighs half as much as other protective fabrics. Molten splatter rolls off a garment made with the fabric, instead of collecting and adding weight.

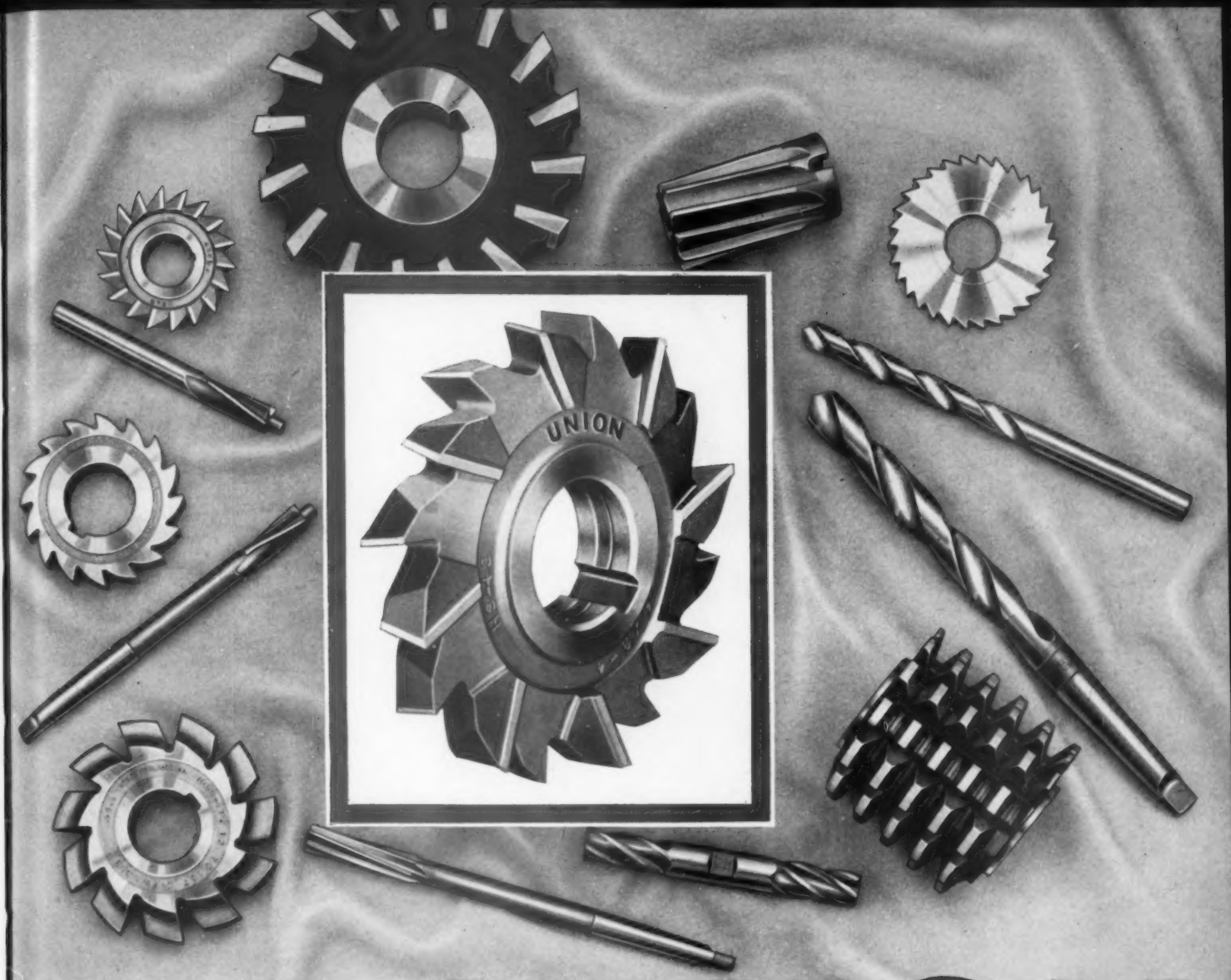
Circle No. 50 on Inquiry Card—Page 17

Portable Wire Stitcher Facilitates Production

An arm-type wire stitcher has been made portable by the use of an aluminum frame. The manufacturer, Acme Steel Co., 2840 Archer Ave., Chicago 8, Ill., says that the stitcher increases flexibility of such operations as closing bags of many types of materials—cellophane, kraft paper, plastic, aluminum foil or waxed paper. In addition, it facilitates attaching bags to cards, assembling light chipboard boxes or fastening labels to merchandise. It occupies only a trifle more than a square foot of bench space, yet forms wire stitches and clinches them at 200 per minute.

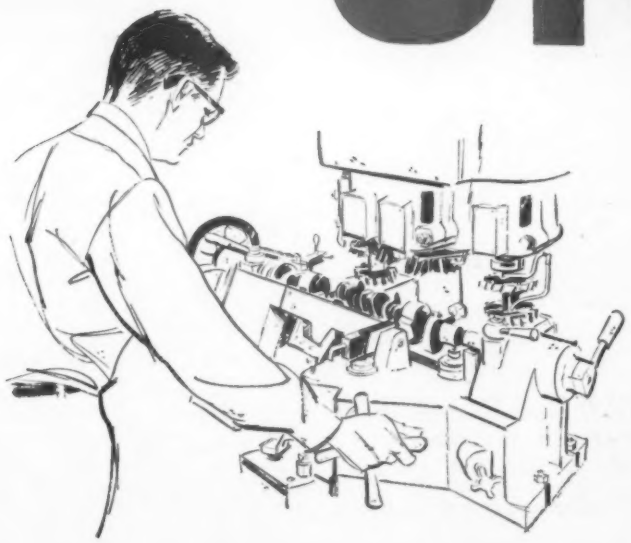
Circle No. 51 on Inquiry Card—Page 17

For More Information Circle No. 175 on Inquiry Card—Page 17→



IN THE METALWORKING INDUSTRY, IT'S

UNION



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- RELIABILITY
- PERSONAL CONTACT

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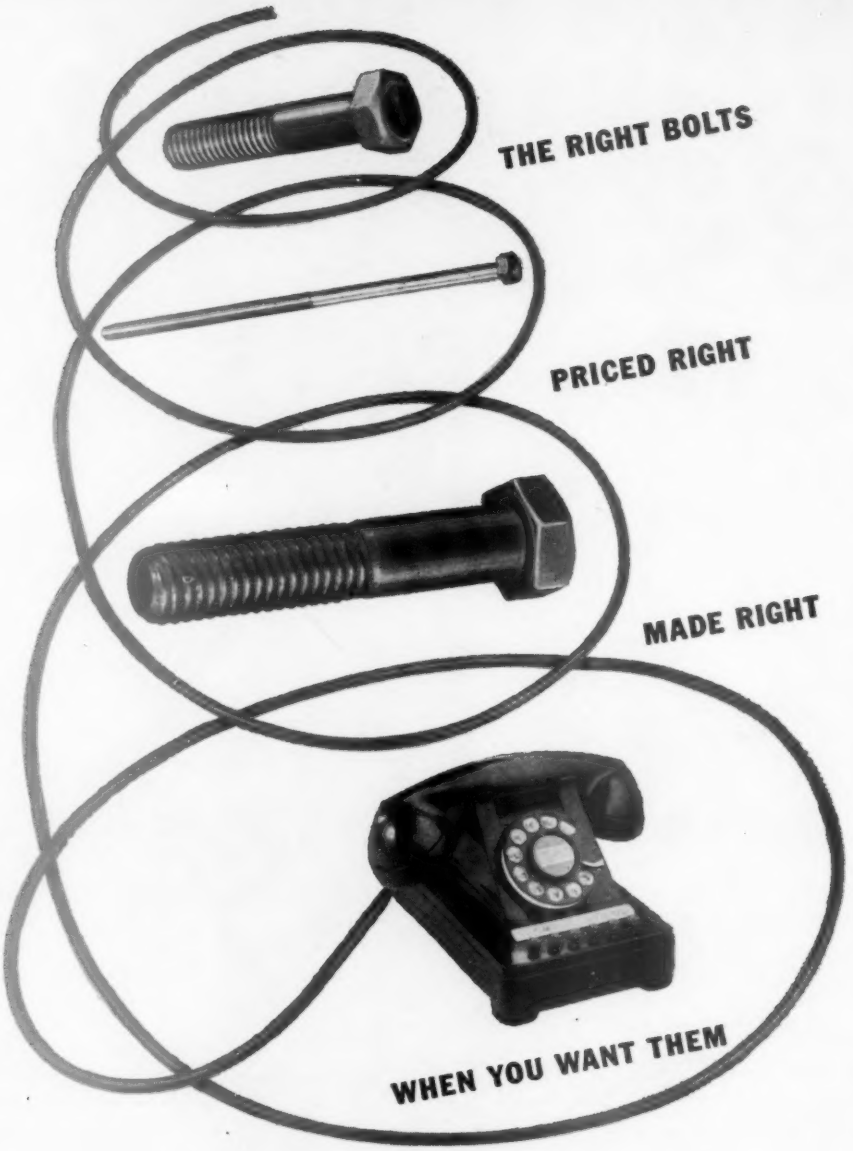
OWNERS AND OPERATORS OF: S. W. CARD MANUFACTURING CO. DIVISION, Mansfield, Mass.
BUTTERFIELD DIVISION, Derby Line, Vermont and Rock Island, Quebec



BUFFALO BOLT SERVICE *completes the picture*

It's our aim to see that you get the right bolts... *when you need them.*
That's why we have set up the finest and fastest service organization in the business.
Now you can get immediate and *accurate* information on prices, deliveries or other pertinent data...by merely calling your Circle Ⓑ distributor or our nearest District Office.
Try it on your next fastener order.

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BUFFALO BOLT COMPANY
Division of Buffalo-Eclipse Corporation
NORTH TONAWANDA, N. Y.
Making both FASTENERS & FRIENDS for 100 years

For More Information Circle No. 176 on Inquiry Card—Page 17

Steel Strapping Stretcher Saves Operating Time

Gerrard Steel Strapping Div., U. S. Steel Corp., 2915 West 47th St., Chicago 32, Ill., has developed a flat steel strapping stretcher which accommodates 2″ x .050 flat steel strapping. It is easily portable. The freewheeling feature of the tension drum and a frame gripper locking in open position make for easier threading. The tension handle can be easily repositioned. Minimum effort is required to remove stretcher from strap after completion of tie. An extension handle is furnished for added tension leverage when necessary.

Circle No. 52 on Inquiry Card—Page 17

Milling Machines with Maximum Table Coverage

Three models of a new milling machine for toolrooms, die shops, and metal working units in general, have been announced by the Cincinnati Milling Machine Co., Cincinnati 9, Ohio. Model 1A features manual feed to quill; 1B, power feed to quill; 1C, heavy duty head. Standard ranges are 16″ longitudinal, 10″ across and 17″ vertical. The overarm of the machines is mounted in dovetail ways in the turret. This construction permits the operator to swivel and position the overarm for complete coverage of the table with the spindle head. Motors for models 1A and 1B are the "pancake" type, model 1C is equipped with a motor built into the overarm.

Circle No. 53 on Inquiry Card—Page 17

For More Information Circle No. 177 on Inquiry Card—Page 17→

ALL OFFERINGS CONSIDERED

PHONE—WRITE—WIRE

NATIONWIDE COVERAGE

WOLVERINE METAL CO.

6500 E. ROBINWOOD • DETROIT 34, MICHIGAN

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99% PLUS PURE NICKEL

DOMESTIC ROLLED CARBON ANODES

AND RECASTABLE MATERIALS

Restricted To

- **ANODES**
- **ELECTROLYTIC CATHODES**
- **PURE NICKEL CLIPS**

GUARANTEED 99% PURE AT A MINIMUM

SEGREGATED LOTS

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RECASTER REJECTIONS ELIMINATED

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NICKEL SALTS
—CHLORIDE
—CARBONATE

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FERROUS & NONFERROUS
SHEET-STRIP-COIL-BAR-PLATE-TUBING

MATERIAL GUARANTEED SUITABLE FOR BRIGHT NICKEL PLATING

QUANTITIES TO MEET YOUR REQUIREMENTS
IMMEDIATE SHIPMENTS — ALLOCATIONS NOT AFFECTED

WOLVERINE METAL CO.

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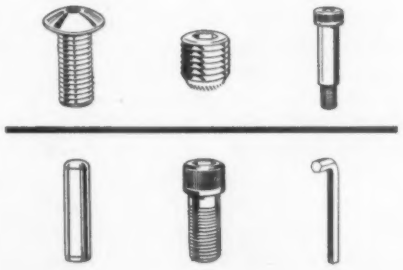
UNBRAKO AT WORK



FINISHING OFF WITH UNBRAKO FLAT HEADS. Holding a thin-section assembly together, and finishing it off with a smooth, good-looking surface is a job for UNBRAKO Flat Head Socket Cap Screws. These precision socket screws are designed for such applications. Heat treated alloy steel provides the strength. Uniform 82° angle under the head assures maximum contact. Accurate hex sockets prevent marring of the screw head or assembly surface. And these UNBRAKOs are easy to get—they are stocked by authorized industrial distributors everywhere. STANDARD PRESSED STEEL CO., Jenkintown 31, Pa.

UNBRAKO® SOCKET SCREW DIVISION SPS JENKINTOWN, PENNSYLVANIA

For More Information Circle No. 178 on Inquiry Card—Page 17

AICO MOLDED PLASTICS offer the answer

Manufacturers from every branch of industry are turning to AICO with the question . . . "How can molded plastics solve my production or sales problems?". Aico's answer has helped many in **cutting costs, improving products** and **adding sales appeal.** The 3 Aico guides shown below answer the questions most frequently asked by manufacturers who seek improvements, savings and sales. Mail coupon today for your **FREE** copies.

CUTTING COSTS

Aico Plastics Applicator quickly tells which plastic material is best suited for your purpose . . . tells method by which it should be molded for greatest production economy.

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ADDING SALES APPEAL

Aico Facilities Book tells what you should look for when selecting a plastics molder to meet your improved product specifications and delivery requirements.

Let these FREE Aico Guides point the way to progress and profits for you. Fill out and mail coupon for your free copies today.

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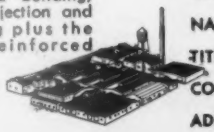
AMERICAN INSULATOR CORPORATION

A Complete Plastics Molding Service including engineering, mold building, compression, injection and cold molding plus the molding of reinforced plastics.



NEW FREEDOM, PENNSYLVANIA

Send me Aico literature checked above.

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

For More Information Circle No. 179 on Inquiry Card—Page 17

Hydraulic Hose Stands 3000 psi Pressure at 400 F

A line of hydraulic hose, known as Fluoroflext-T YR700, has been developed by Resistoflex Corp., Belleville, N.J., to withstand synthetic or petroleum-based hydraulic fluids at temperatures over 400 F, and pressures of 3000 psi. It finds application wherever equipment is operating at high speeds and temperatures. The new hose is claimed to resist breaking down under extreme operational conditions.

Circle No. 54 on Inquiry Card—Page 17

Barrel Hook Lifts, Tilts Drums for Emptying

An all-position barrel hook has a sliding ring which can be locked between links. This permits the drum to be either lifted or tilted for emptying. Overall length of hook is reduced from 47″ to 42″, providing for greater headroom when loading or unloading drums from storage racks. The hooks are made of a strong, durable, spark-resisting alloy for safely handling drums of flammable or explosive materials. They are a product of Ampco Metal Inc., 1745 S. 38th St., Milwaukee 46, Wis.

Circle No. 55 on Inquiry Card—Page 17

Clear, Vinyl Cast Film and Sheeting

Window-clear, flexible vinyl cast film and sheeting is now being produced by Bakelite Co., 260 Madison Ave., New York 16, N.Y., in continuous sheets and in thicknesses ranging from .005″ to .010″. Sizeable economies in manufacture and a greater range in product size are made possible by continuous rolls of vinyl cast film and sheeting. Tougher than conventional transparent materials, the vinyl cast film and sheeting has high abrasion resistance and can be flexed and folded without cracking.

Circle No. 56 on Inquiry Card—Page 17

Built for Severe Service
All O-B Gate Valves feature the self-adjusting Flexitite Disc®. Its unusual design combines advantages of both the solid-wedge disc and the two-piece disc. Order O-B gates from your Ohio Brass distributor.
O-B VALVES
FLEXITITE DISC
150 WSP
300 WOG
Ohio Brass
MANSFIELD OHIO, U.S.A.
4559-V
For More Information Circle No. 180 on Inquiry Card—Page 17

Parts for this piston and sleeve assembly were mated and lapped to a precision fit. Clearance tolerances were maintained on the assembly to less than .00006". Inside diameter, concentricity and grooves were also held to very close tolerances.

ACME CAN PRODUCE PRECISION PARTS OR ASSEMBLIES TO YOUR ORDER

Acme will produce, to your specifications, finished hardened and ground parts from ferrous or other materials, complete from raw stock or from your semi-finished parts, in quantities from one to a million pieces.

Parts can be produced as individual pieces or as assemblies, with or without pistons. Tolerances to within .00001" or less, and corresponding micro-inch finishes can be maintained.

Acme's modern plant contains over 250 metal-working machines and 150 pieces of laboratory testing and inspecting equipment. Services include complete machining, heat treating, grinding, lapping and honing operations.

For over 35 years Acme has been producing hardened and ground parts for thousands of satisfied customers.

Send your prints and specifications to the factory for quotation, or request a representative to call on you.

Write for literature or additional information.

See our file in Sweet's.

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211 N. LAFLIN STREET, CHICAGO 7, ILLINOIS
Manufacturers of standard dowel pins • Chamfer micrometer gages • Drill jig bushings • Portable bench centers • Roughness comparison specimens • Hardened and ground parts manufactured to order

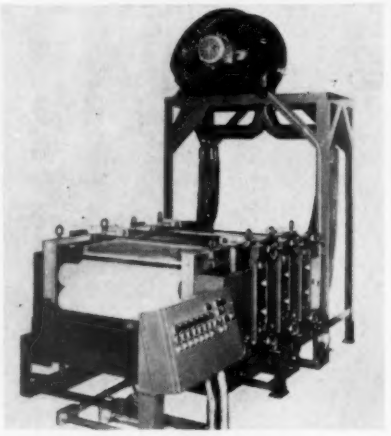
For More Information Circle No. 181 on Inquiry Card—Page 17

Coil Dispenser Bands Shipments Fast

An electrically - operated steel strapping dispenser for rapid banding of shipments is on the market. It is equipped with a magnetic brake for instantaneous stopping and to prevent overruns. It is available with or without shear, depending on whether cut lengths or continuous strapping are needed. This push-button dispenser is made by Allegheny Steel Band Co., Box 716, Pittsburgh 30, Pa., in three models to handle full coils of ¾", 1¼" and 2" steel.

Circle No. 57 on Inquiry Card—Page 17

Scrubbing Machine Cleans Both Sides of Metal Sheets



An industrial scrubbing machine cleans both sides of metal sheets to the high degree necessary to pass successfully the water break test for cleanliness. This test means that a film of water, spread on the surface of the sheet, will be continuous and not broken as when any surface oil remains. There are two models, a long and a short. The longer machine removes heavier accumulations of surface dirt. Either machine processes sheets at the rate of 60 feet a minute. The machines are a product of Fuller Brush Co., Machine Div., Hartford 2, Conn.

Circle No. 58 on Inquiry Card—Page 17

For More Information Circle No. 182 on Inquiry Card—Page 17→

How can purchasing contribute to low-cost WELD QUALITY?

WHEN YOU BUY WELDING ELECTRODES, you can help assure weld quality at low cost by using these guides to electrode evaluation: 1) approvals by regulatory bodies 2) tests with sample electrodes 3) past performance in your own plant and 4) completeness of the electrode manufacturer's line.

ALL ELECTRODES ARE NOT ALIKE. *Only* fully approved G-E electrodes give your weldors BALANCED DESIGN. The result is the most economical blending of three qualities sought in electrodes: 1) ease of use 2) welding speed and 3) x-ray quality.

YOU ALSO SAVE WITH quantity discounts when you choose from the full line of G-E electrodes—the most complete line in the industry . . . over 70 different types. Your nearby G-E distributor (over 200 outlets in the U.S.) is ready to give you fast "local" service.

GENERAL ELECTRIC

BUYING QUIZ NO. 1

HOW DO YOU RATE AS A BUYER OF WELDING ELECTRODES?

- Can I save by standardizing on types of electrodes?

Yes . . In many plants, a wide variety of electrodes are used when one or two types could do all the jobs effectively. (Your G-E welding distributor will help you survey your electrode requirements and determine where you can save by standardization.)

- Are electrode manufacturers set up to make fast delivery?

Not to the same degree. You should make sure your electrode supplier can give you service and delivery when you need it. *(G.E. has over 200 distributor outlets to give you "local" service.)*

- Do electrode users pay for application service by electrode specialists?

Policy varies among electrode manufacturers. (G.E. provides expert application and trouble shooting service for its customers at no cost.)

- Are all electrodes alike in quality and performance?

Not always. Tests prove that electrodes in the same classification—but made by different manufacturers—may produce welds of varying quality, even under the same conditions. Ask about quality difference and check for approvals by national standards groups.

If you scored well in this quiz, then chances are you are doing a good job as a buyer of welding electrodes. To make your electrode buying still easier and more effective, send in the attached coupon for two new buying aids. And call in your nearby G-E welding distributor—his name is listed in the yellow pages of your phone book.

Section A715-1, General Electric Co., Schenectady, N. Y.

Please send me the electrode buying aids checked below:

- ☐ **GEN-37C, Electrode Comparator**
- ☐ **GEC-657G, Electrode Selector Chart**

Name.....

Title..... **Co.**.....

Street.....

City..... **State**.....

TOOL WEAR...–75%
MACHINING SPEED...+100%
ON THIS GRAY IRON RING

...thanks to
FERROCARBO®

Users everywhere report similar experiences. In fact, on 67 machining tests in 11 large machine shops, castings of gray iron treated with FERROCARBO averaged 89.5% greater machinability per tool than untreated castings. These premium castings are finer-grained, denser, stronger, yet they COST YOU NO MORE... because your foundryman, using FERROCARBO, makes worthwhile savings in raw material costs.

FOR FREE BOOKLET on FERROCARBO, citing actual case histories of faster machining, with longer tool life, write The Carborundum Company, Dept. 33, Niagara Falls, N.Y. 84-53

CARBORUNDUM®

For More Information Circle No. 183
on Inquiry Card—Page 17

JUST LEAN OUT THE WINDOW AND YELL!

That's about all you have to do to contact one of Milford's 5 plants or 20 offices! And Milford means fast deliveries, top quality and service — always!

THE MILFORD RIVET & MACHINE CO.

Plants: Milford, Conn.; Norwalk, Calif.; Elyria, Ohio; Aurora, Ill.; Hatboro, Pa.

Offices: Atlanta, Chicago, Cleveland, Detroit, Fort Worth, Indianapolis, Newark, New York, Pittsburgh, Racine, St. Louis, St. Paul, San Francisco, Seattle; Norwalk, Calif.; Stratford, Conn.; Charlotte, N. C.; Seneca Falls, N.Y.; Jenkintown, Pa.; Westwood, Mass.

Headquarters for RIVETS
Tubular, split and special cold formed
and Rivet-setting Machines

For More Information Circle No. 184
on Inquiry Card—Page 17

Neutralizing Acid for Alkali Burns

E. D. Bullard Co., 275 Eighth St., San Francisco 3, Calif., announces a product that can be applied to eye or skin burns before the pH of the chemical which caused the burn is known. Called "Neutralize," it is only necessary to pour it into the eyes or over the skin to render the injurious chemical neutral and, therefore, harmless. The product counteracts both acids and alkalies without inducing new complications, such as might occur when other antidotes are used.

Circle No. 59 on Inquiry Card—Page 17

Long-Wearing Ribbed Plastic Gloves

A ribbed plastic glove, manufactured by The Boss Mfg., Co., Kewanee, Ill., is claimed to withstand extreme hard wear. Ribbed plastic material is used on the entire palm, thumb and first finger, while the cotton "breaker back" principle is used on the back of the glove. Material in the glove remains flexible at temperatures ranging from —20 F to 240 F. The glove does not become stiff or tacky. The plastic ridges are ideally slow conductors; in hot work they heat slowly and in cold work they cool slowly. The coated surface resists a wide variety of chemicals and solvents, acids and alkalies of moderate concentrations but not ketones, chlorinated hydrocarbons or hydrogenated furans.

Circle No. 60 on Inquiry Card—Page 17

400-Amp Circuit Breaker

A 400-amp molded case air circuit breaker in the new KL frame size is available from Westinghouse Electric Corp., Box 2099, Pittsburgh 30, Pa. Providing automatic circuit protection for enclosures, switchboards and panelboards, the new breakers employ both thermal and adjustable magnetic tripping for overload and short circuit protection. Their interrupting capacity is 25,000 amp at 600 v a-c or 30,000 amp at 240 v a-c.

Circle No. 61 on Inquiry Card—Page 17

REYNOLDS DISTRIBUTORS

ALABAMA
Southern States Iron Roofing Co., Birmingham
CALIFORNIA
Braico Metals, Inc., *Los Angeles
Clingan & Fortier, Inc., Fresno, *Los Angeles, San Francisco and Vernon
Pioneer Aluminum Supply Co., *Los Angeles
Turner Metal Supply Co., (Wire, Rod, Bar) *Huntington Park
Union Hardware & Metal Co., *Los Angeles
United States Steel Supply Div., Los Angeles
CONNECTICUT
American Steel & Alloys Corp., *Hartford
Peter A. Frasse & Co., Hartford
Scovill Mfg. Co., (Wire, Rod, Bar) *Waterbury
FLORIDA
Coral Gables Supply Co., Miami
Southern States Iron Roofing Co., Jacksonville, Miami, Orlando and Tampa
GEORGIA
Southern States Iron Roofing Co., Atlanta and *Savannah
ILLINOIS
Aluminum Distributors Inc., *Chicago
J. G. Braun Co., (Architectural only) Chicago
Joseph T. Ryerson & Son, Inc., Chicago
Scovill Mfg. Co., (Wire, Rod, Bar) Chicago
United States Steel Supply Div., *Chicago
Benjamin Wolff & Co., *Chicago
INDIANA
W. J. Holliday & Co., *Indianapolis and Hammond
Kasle Steel Corporation, Elkhart
KANSAS
Industrial Metals, Inc., Wichita
KENTUCKY
Southern States Iron Roofing Co., Louisville
LOUISIANA
Southern States Iron Roofing Co., New Orleans
MARYLAND
Clendenin Bros., Inc., *Baltimore
Lyon, Conklin & Co., Inc., *Baltimore
MASSACHUSETTS
Jos. T. Ryerson & Son, Inc., Boston
MICHIGAN
Kasle Steel Corporation, *Detroit and Grand Rapids
McDonnell Bros., Inc., (Architectural only) *Detroit
Meier Brass & Aluminum Co., *Detroit
MINNESOTA
MacArthur Co., (Architectural only), *St. Paul
United States Steel Supply Div., St. Paul
Vincent Brass & Copper Co., *Minneapolis
MISSOURI
Industrial Metals, Inc., *Kansas City and St. Louis
United States Steel Supply Div., St. Louis
NEW JERSEY
Edgcomb Steel and Aluminum Corp., Hillside
Peter A. Frasse & Co., Lyndhurst
Mapes & Sprowl Steel Co., *Union
NEW YORK
J. G. Braun Co., (Architectural only) *New York
Edgcomb Steel and Aluminum Corp., Hillside, N. J.
Peter A. Frasse & Co., Buffalo, *New York, Rochester, Syracuse
Mapes & Sprowl Steel Co., Union, N. J.
Ontario Metal Supply, Inc., (Wire, Rod, Bar) *Rochester
NORTH CAROLINA
Southern States Iron Roofing Co., Raleigh
OHIO
Kasle Steel Corporation, Cleveland
Mutual Manufacturing & Supply Co., *Cincinnati
Vorys Brothers, Inc., *Columbus
OREGON
Woodbury & Company, Coos Bay, Eugene, Medford and *Portland
PENNSYLVANIA
Athos Steel Service Co., *Philadelphia
Peter A. Frasse & Co., Philadelphia
Merchant & Evans Co., *Philadelphia
Penna. Industrial Supplies Co., Inc., *Pittsburgh
Potts-Farrington Company, *Philadelphia
RHODE ISLAND
Congdon & Carpenter, *Providence
SOUTH CAROLINA
Southern States Iron Roofing Co., Columbia
TENNESSEE
Southern States Iron Roofing Co., Memphis and Nashville
TEXAS
Allied Metals Inc., *Houston
Moncrief-Lenoir Mfg. Co., Dallas, Harlingen, *Houston, Lubbock, San Antonio and Temple
Vinson Steel and Aluminum Co., *Dallas, Odessa and Amarillo
UTAH
Salt Lake Hardware Co., *Salt Lake City
VIRGINIA
Southern States Iron Roofing Co., Richmond
WASHINGTON
Clingan & Fortier, Inc., Seattle
WISCONSIN
Benjamin Wolff & Co., Milwaukee
TERRITORY HAWAII
American Factors, Ltd., *Honolulu
*Indicates main office

Look Under "Aluminum" in Your Classified Telephone Directory

5-20-58

Your Reynolds distributor is right next door—

Your partner in production

There's a simple way to order aluminum in just the form you need to meet your production schedules. Pick up the phone and call your Reynolds Aluminum Distributor. Aluminum experts, trained by Reynolds and aided by Reynolds technical staff are always ready with the assistance you need. They're on the job . . . but not on your payroll. These and other distributor services will save you time and money.

Call your nearest Reynolds Distributor, listed in the adjoining column, for his aluminum stock list and assistance with your problems.

REYNOLDS ALUMINUM

MODERN DESIGN HAS ALUMINUM IN MIND

For More Information Circle No. 185 on Inquiry Card—Page 17

"LUBRIPLATE, THE OUNCE OF PREVENTION"

says
VULCAN IRON WORKS, INC.
of Chicago, Ill.

—a leading manufacturer of pile driving and extracting equipment

"For many years we have used LUBRIPLATE Lubricants for shop assembly, and have recommended them to our customers through your LUBRIPLATE Tag Plan. Our experience shows that if the proper lubricants are used from the beginning, there are fewer problems and parts replacements later. We consider LUBRIPLATE to be the best possible ounce of prevention."—
H. G. Warrington, Vice-Pres.

REGARDLESS OF THE SIZE AND TYPE OF YOUR MACHINERY, LUBRIPLATE GREASE AND FLUID TYPE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE COSTS.

LUBRIPLATE is available in grease and fluid densities for every purpose... LUBRIPLATE H. D. S. MOTOR OIL meets today's exacting requirements for gasoline and diesel engines.

For nearest LUBRIPLATE distributor see Classified Telephone Directory. Send for free "LUBRIPLATE DATA BOOK"... a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.

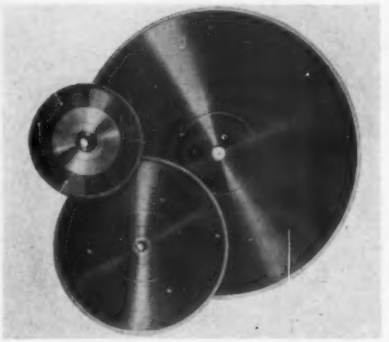
For More Information Circle No. 186 on Inquiry Card—Page 17

Contact-Arc Gap Electrode Welds Carbon Steel

A versatile a-c/d-c contact arc gap electrode for welding carbon steel features rapid deposition, excellent weld appearance and automatic slag removal. Slag coverage is 100% without slag inclusion. Slag curls and removes automatically even when beads are run side by side as in cladding and when base metals are hot. Slag also lifts on fillet welds. Successful welds are achieved without burn-through on 1/8", 3/16" and 1/4" steel plate as well on heavier 3/8" to 3/4" material. It is produced by Eutectic Welding Alloys Corp., Flushing 58, N.Y.

Circle No. 62 on Inquiry Card—Page 17

Diamond Saw Cuts Hardest Plastics Without Coolants



A direct diamond-to-steel bonding process is being applied in the manufacture of diamond tools. It enables the cutting of even the hardest plastics in a smooth, one-pass operation at high speeds and without the use of coolants. Among plastics that can now be cut and finished for the first time without difficulty are epon, mica, melamine, silicone, glassite, micarta, and polyester fiberglass. The absence of a soft intermediate bonding agent has the advantage of giving these tools remarkably long life. Use expectancy has been increased by as much as 1000%. The saw is made by Dia-Chrome Co., 722 South Verdugo Rd., Glendale 5, Calif.

Circle No. 63 on Inquiry Card—Page 17

Improve Tapping Efficiency

An adjustable tap holder with a through-hole design is now available. The through-hole design tap holder eliminates downtime customarily required for cutting off the tap shank, makes it unnecessary to remove the bushing to extricate a broken tap and prevents identifying information from being ground off. There is full adjustability over a total of 1/4". It is made by American Cam Co., Hartford 1, Conn.

Circle No. 64 on Inquiry Card—Page 17

WALDES TRUARC®

RETAINING RINGS
ARE AVAILABLE THROUGH
THESE LEADING OEM DISTRIBUTORS
Check the one nearest you for quick service

AKRON, OHIO—Bearings, Inc.
ANCHORAGE, ALASKA—Bearing Eng. Co. of Alaska
APPLETON, WIS.—Wisconsin Bearing Co.
ATLANTA, GA.—Moffatt Brgs. Co.
BALTIMORE, MD.—Moffatt Brgs. Co.
BATON ROUGE, LA.—Dixie Brgs.
BINGHAMTON, N. Y.—Syracuse Bearing Sotier Corp.
BIRMINGHAM, ALA.—Moffatt Brgs.
BOSTON, MASS.—Bearings Spec. Co.
BRIDGEPORT, CONN.—Bobker Brgs.
BUFFALO, N. Y.—Syracuse Brg. Corp.
CANTON, OHIO—Bearings, Inc.
CHARLESTON, W. VA.—Bearings, Inc.
CHARLOTTE, N. C.—Moffatt Brgs. Co.
CHICAGO, ILL.—Berry Brg. Co.
CINCINNATI, OHIO—Bearings, Inc.
CLEVELAND, OHIO—Bearings, Inc.
CLIFTON, N. J.—Bobker Brgs., Inc.
COLUMBUS, OHIO—Bearings, Inc.
DALLAS, TEXAS—Bearing Chain & Supply Co.
DAVENPORT, IOWA—Standard Brgs.
DAYTON, OHIO—Bearings, Inc.
DECATUR, ILL.—Illinois Brg. Co.
DENVER, COL.—Bearings Svc. & Supply Co.
DES MOINES, IOWA—Standard Brgs. Co.
DETROIT, MICH.—Michigan Brg. Co.
EAST ST. LOUIS, ILL.—Neiman Brgs. Co.
ELYRIA, OHIO—Bearings, Inc.
ERIE, PA.—Bearings, Inc.
EVANSVILLE, IND.—Bearings Svc. Co.
GARY, IND.—Berry Bearing Co.
GRAND RAPIDS, MICH.—Michigan Bearing Co.
GREENSBORO, N. C.—Tennessee Brgs., Inc.
HAMILTON, OHIO—Bearings, Inc.
HAMMOND, IND.—Berry Bearing Co.
HIGHLAND PARK, N. J.—Bobker Brg. Co., Inc.
HOUSTON, TEXAS—Cunningham Bearing Co.
HUNTINGTON, W. VA.—Bearings, Inc.
IDAHO FALLS, IDAHO—Bearings Svc. & Supply Co.
INDIANAPOLIS, IND.—Service Supply Co.
JACKSONVILLE, FLA.—Moffatt Brgs.
JAMESTOWN, N.Y.—Syracuse Brg. Jamestown Corp.
JERSEY CITY, N. J.—Bobker Brgs., Inc.
JOHNSTOWN, PA.—Bearings, Inc.
KANSAS CITY, MO.—Bearing Distributors
KINGSPORT, TENN.—Tennessee Brgs., Inc.
KNOXVILLE, TENN.—Tennessee Brgs., Inc.
LANSING, MICH.—Michigan Bearing Co.
LIMA, OHIO—Bearings, Inc.
LITTLE ROCK, ARK.—Southern Brg. Service, Inc.
L. I. CITY, N. Y.—Bobker Brgs., Inc.
LOS ANGELES, CAL.—Edw. D. Maltby Co., Inc.
LOUISVILLE, KY.—Kentucky Ball & Roller Brg. Co.
MADISONVILLE, KY.—Bearings Svc. Co.
MANSFIELD, OHIO—Bearings, Inc.
MARION, ILL.—Bearings Service Co.
MAYWOOD, CAL.—Edw. D. Maltby Co., Inc.
MEMPHIS, TENN.—Southern Bearing Svc., Inc.
MILWAUKEE, WIS.—Wisconsin Bearing Co.
MINNEAPOLIS, MINN.—Industrial Supply Co.
NEWARK, N. J.—Bobker Brg. Co., Inc.
NEW ORLEANS, LA.—Dixie Brgs., Inc.
NEW YORK CITY, N. Y.—Bobker Brgs., Inc.
NIAGARA FALLS, N. Y.—Syracuse Brg. Corp.
OAKLAND, CALIF.—Bearing Engineering Co.
OMAHA, NEB.—Precision Bearing & Trans. Co.
PEORIA, ILL.—Illinois Bearing Co.
PHILADELPHIA, PA.—Moffatt Brgs. Co.
PHOENIX, ARIZ.—E. D. Maltby Co.
PITTSBURGH, PA.—Bearings, Inc.
PITTSFIELD, MASS.—Bearing Distributors
PORTLAND, ORE.—The General Tool Co.
RACINE, WIS.—Wisconsin Bearing Co.
RICHMOND, VA.—Moffatt Brgs. Co.
ROCHESTER, N. Y.—Syracuse Bearing Co.
ROCKFORD, ILL.—Berry Bearing Co.
SAGINAW, MICH.—Michigan Bearing Co.
ST. LOUIS, MO.—Neiman Brgs. Co.
SALT LAKE CITY, UTAH—Brgs. Svc. & Supply Co.
SAN DIEGO, CAL.—E. D. Maltby Co., Inc.
SAN FRANCISCO, CALIF.—Bearing Engineering Co.
SEATTLE, WASH.—Brg. Engineering & Supply Co.
SHREVEPORT, LA.—Bearing & Trans. Co.
SIOUX CITY, IOWA—Standard Brgs. Co.
SOUTH BEND, IND.—Bearings Service Co.
SYRACUSE, N. Y.—Syracuse Bearing Co.
TOLEDO, OHIO—Bearings, Inc.
TRENTON, N. J.—Moffatt Bearings Co.
TROY, N. Y.—Bearing Distributors
TULSA, OKLA.—Clark Brg. Specialist & Supply Co.
UTICA, N. Y.—Syracuse Bearing Corp.
WHEELING, W. VA.—Bearings, Inc.
WICHITA, KAN.—BRC Bearing Co., Inc.
YORK, PA.—Bearings, Inc.
YOUNGSTOWN, OHIO—Bearings, Inc.
ZANESVILLE, OHIO—Bearings, Inc.

CANADA
MONTREAL, QUEBEC—Lyman Tube & Brgs., Ltd.
NEW GLASGOW, N. S.—Lyman Tube & Brgs., Ltd.
TORONTO, ONTARIO—Lyman Tube & Brgs., Ltd.
VANCOUVER, B. C.—Lyman Tube & Brgs., Ltd.
Morton Engineering, Ltd.
WINNIPEG, MAN.—Lyman Tube & Brgs., Ltd.

HAWAII
HONOLULU—Bearing & Equipment Co., Ltd.

6 Reasons why Waldes Truarc is your one dependable source for retaining rings

Series 5000 internal

Series 5100 external

Series 5008 inverted internal

Series 5108 inverted external

Series 5001 bowed internal

Series 5101 bowed external

Series 5002 beveled internal

Series 5102 beveled external

Series 5103 crescent

Series 5131 bowed E-ring

Series 5133 E-ring

Series 5139 locking prong

Series 5555 grip ring

Series 5107 interlocking

Series 5005 self-locking internal

Series 5105 self-locking external

Series 5300 triangular nut

Series 5305 triangular self-locking

Series 5400 A special purpose

Series 5104 special purpose

Series 5500-31 special purpose

Series 5500-96 special purpose

Series 5504 special purpose

Series 5505 special purpose

WHATEVER YOU MAKE, THERE'S A WALDES TRUARC RING DESIGNED TO SAVE YOU MATERIAL, MACHINING AND LABOR COSTS

COMPLETE SELECTION—All your retaining ring requirements can be obtained from this one dependable source. Waldes Truarc rings are available in 36 functionally different types... as many as 97 standard sizes within a ring type . . . 5 metal specifications and 14 different finishes.

MANUFACTURING EXPERIENCE—Waldes Truarc pioneered precision retaining rings. Truarc Rings have been standardized by leading U. S. industries and Government agencies. Waldes Kohinoor, Inc. has over 50-years experience in inventing, developing, and manufacturing precision fasteners.

QUALITY CONTROL—Every step in the manufacture of Waldes Truarc rings—from engineering and raw materials through to the finished product—is carefully controlled and tested in our own modern plant. Truarc standards are the highest in the industry—your guarantee of consistent, uniform quality.

DESIGN SERVICE—For help in designing new products or in refining present designs, send your blueprints to Waldes Truarc engineers. Whether your product requires standard or custom-designed rings, these experts are ready to help you. They will also design special assembly jigs and fixtures—or even help you set up an automation assembly operation.

FIELD ENGINEERING SERVICE—More than 30 engineering-minded factory representatives and 700 field men are available to you on call! This engineering service can prove invaluable in helping you to solve design, assembly and production problems.

DISTRIBUTION—Truarc rings are available from leading OEM Distributors in 90 stocking points throughout the United States and Canada.

WALDES TRUARC® RETAINING RINGS

WALDES KOHINOOR, INC.
LONG ISLAND CITY 1, NEW YORK

WALDES TRUARC Retaining Rings, Grooving Tools, Pliers, Applicators and Dispensers are protected by one or more of the following U. S. Patents: 2,382,948; 2,411,426; 2,411,761; 2,416,852; 2,420,921; 2,428,341; 2,439,785; 2,441,846; 2,455,165; 2,483,379; 2,483,380; 2,483,383; 2,487,802; 2,487,803; 2,491,306; 2,491,310; 2,509,081; 2,544,631; 2,546,616; 2,547,263; 2,558,704; 2,574,034; 2,577,319; 2,595,787, and other U. S. Patents pending. Equal patent protection established in foreign countries.

For More Information Circle No. 187 on Inquiry Card—Page 17

New Frigidaire Water Coolers

Cool water for pennies a day — the trouble-free way

Cold water flows in instant response to the Toe-touch Pedal. And the Flash-O-Matic principle wastes no water or electricity. Stream is constant even when water pressure varies from 25 to 150 lbs. Stainless steel top.

Seven models, including bottle-type coolers with or without refrigerated storage compartment and new "explosion-proof" model for use in hazardous areas. Powered by the famous Meter-Miser Compressor. Call your Frigidaire Commercial Dealer or write: Frigidaire, Dayton 1, Ohio. In Canada, Toronto 13, Ontario.

Bottle-Type with Compartment

Frigidaire Water Coolers

Built and backed by General Motors

For More Information Circle No. 188 on Inquiry Card—Page 17

Power Sweepers For Large Or Small Plant

Four models of power sweepers for industrial use incorporate in their construction filter dust control with easily removable dust bin, automatic dumping, large hopper capacity and 20″ curb brooms for closer sweeping. Exceptionally easy to maneuver, the power models have a range of sweeping paths from 24″ to 58″ and a maximum coverage of over 100,000 square feet per hour. They are a product of Wayne Mfg. Co., Pomona, Calif.

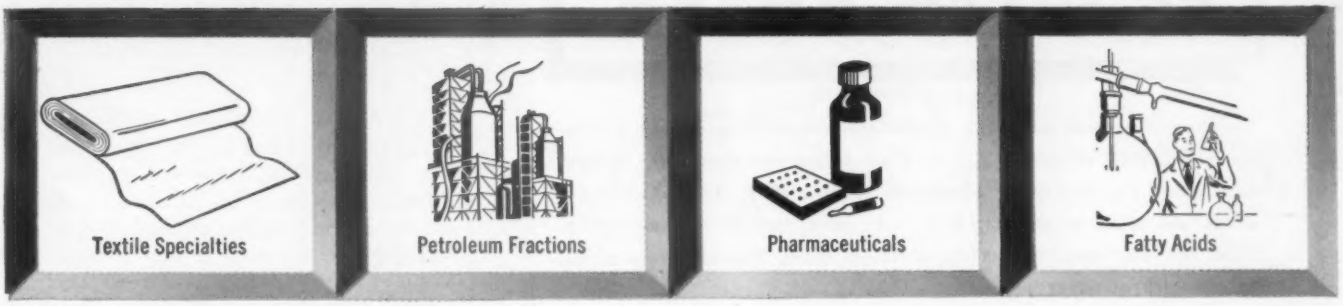
Circle No. 65 on Inquiry Card—Page 17

Adjustable Container Sections Pack in New Way

A unique method of packing, developed by Signode Steel Strapping Co., 2600 N. Western Ave., Chicago 47, Ill., utilizes eight modular units of slotted and scored fiberboard sheets to act as an outer pack to smaller packages. Four sections comprise the bottom, four the top. All sections are identical and interchangeable. They telescope allowing sections to conform to the inner containers. To make an adjustable container, flat sheets are bent at scoring mark and stapled or taped into a corner piece. Four corner pieces are formed into an open container and the packages deposited inside. Four additional corners are formed and placed on top, telescoping over bottom sections. Entire package is unitized with steel strapping.

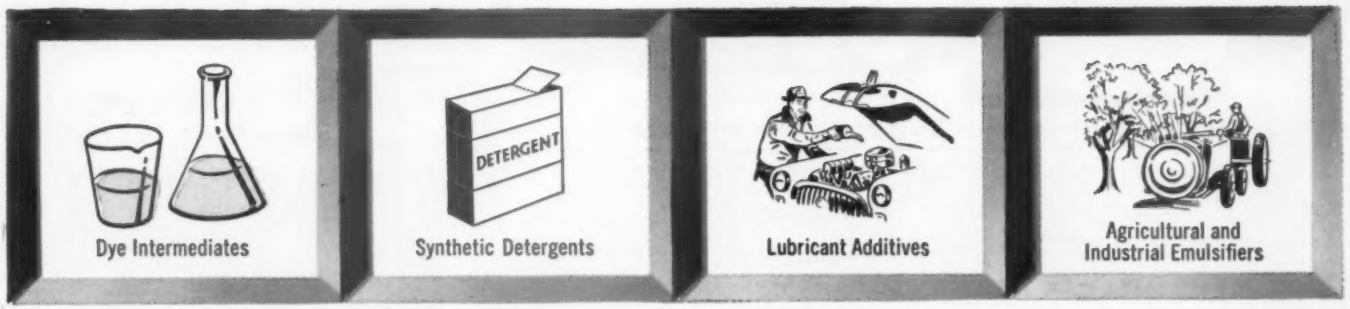
Circle No. 66 on Inquiry Card—Page 17

FOR SULFONATIONS SULFATIONS



Use SULFAN®

(Stabilized Sulfuric Anhydride)



. . . Here's Why!

You Improve Sulfonation Efficiency. SULFAN has 99.5% SO_3 available for sulfonation reactions. In many applications, this means considerable savings in operating costs because SULFAN offers nine times as much usable SO_3 as 100% sulfuric acid, and over three times as much as 20% oleum.

You Increase Batch Sizes. With SULFAN, there is no waste acid. This means larger batch sizes (or more rapid through-put) . . . often double without increasing size of equipment! Since no water is formed when SULFAN is used for sulfonation, the waste acid problem inherent with sulfuric acid or oleum is also eliminated.

Benefits of operating efficiency, ease of handling and waste acid elimination make SULFAN worth your prompt investigation. Write today for technical information. A letter outlining your specific needs will enable us to supply data of value to you. As always, information regarding your process will be held in strict confidence.

Product Development Department

GENERAL CHEMICAL DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 Rector Street, New York 6, N. Y.

GC Allied Chemical

Basic Chemicals for American Industry

For More Information Circle No. 189 on Inquiry Card—Page 17

NO PLANT GROWTH

WHEN YOU USE DOLGE SS WEED-KILLER

For areas where you want ALL unsightly, fire-inviting weeds and grasses eliminated, such as railroad sidings, along fences and abutments, parking lots, drives and walks. An economical solution of SS Weed-Killer kills plants and seeds on contact, then works down through the soil, killing roots and sterilizing surrounding earth—affording freedom from weeds for as much as an entire year!

And . . . for keeping lawn areas, seeded traffic islands and other improved areas free from noxious weeds, use E.W.T. SELECTIVE WEED-KILLER. Non-injurious to most grasses.

Scientific chemical weed control literature on request.

FOR FREE SANITARY SURVEY OF YOUR PREMISES SEE YOUR DOLGE SERVICE MAN

perentable DOLGE

WESTPORT, CONNECTICUT

For More Information Circle No. 190 on Inquiry Card—Page 17

Rate Your Trucks For QDC* In 12 Seconds!

	Yes	No
Do they start and roll easily?	☐	☐
Are parts quickly, easily replaced?	☐	☐
Do they withstand years of abuse?	☐	☐
Are they designed for YOUR job?	☐	☐

Just one "no" in this check chart for *Quality Design and Construction means you're not getting the economies offered by Nutting trucks. Dependability, minimum maintenance and ease of operation are *always* the result of QDC. And QDC is the result of 64 years experience in the manufacture of floor trucks!

Nutting TRUCK & CASTER COMPANY

1270 Division Street, Faribault, Minnesota

Since 1891

For *all* the facts call your Nutting representative . . . he's listed under "Trucks" or "Casters" in the yellow pages. Or write direct for the Junior Catalog.

For More Information Circle No. 191 on Inquiry Card—Page 17

Adjustable Die Varies Thread Diameters .004"

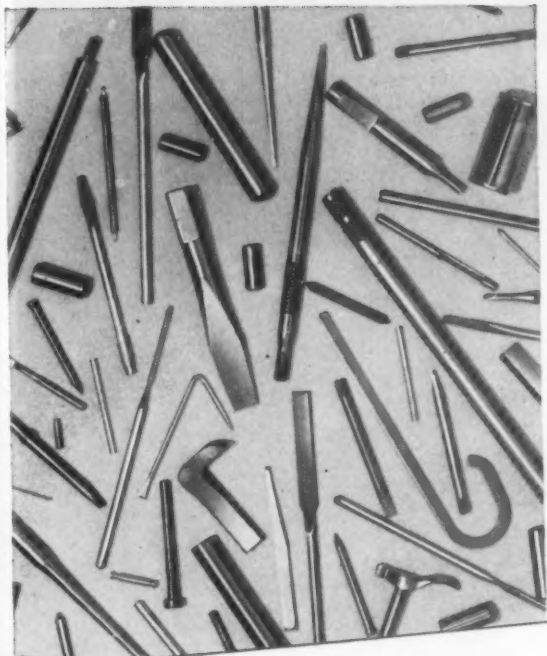
A self - contained adjustable threading die has been developed by Woodruff & Stokes Co., Inc., Hingham, Mass. The threaded outside diameter of the cutting end of the die permits simple and positive adjustment of a hex collar so that thread diameter may be varied over a range of .004". Once set, the die will not change even under the severe conditions of turret indexing. The collar permits easy removal of stock broken within the die. The threading dies are available in high speed and carbon steel in sizes from 2-56 to 0000-360 with various pitches including metric variations.

Circle No. 67 on Inquiry Card—Page 17

Ultrasonic Drill Cuts Intricate Shape Holes

Called a "diatron," an ultrasonic drill cuts intricate shape holes in the hardest metals and ceramics in a single operation. It can use a drill head of any geometric form. The drill head forcefully drives a fluid mixture into the piece being worked. The drill tip strikes several thousands of times per second to penetrate the object. No finishing or polishing are required after drilling. The tool leaves a smooth interior surface, is cool in operation and causes no change of physical, chemical, electrical or metallurgical characteristics. It is a product of Curtiss-Wright Corp., Wood-Ridge, N. J.

Circle No. 68 on Inquiry Card—Page 17



One hundred or a million... small precision parts are exactly alike — TORRINGTON

Precision and uniformity go hand in hand at Torrington—regardless of the size of the order.

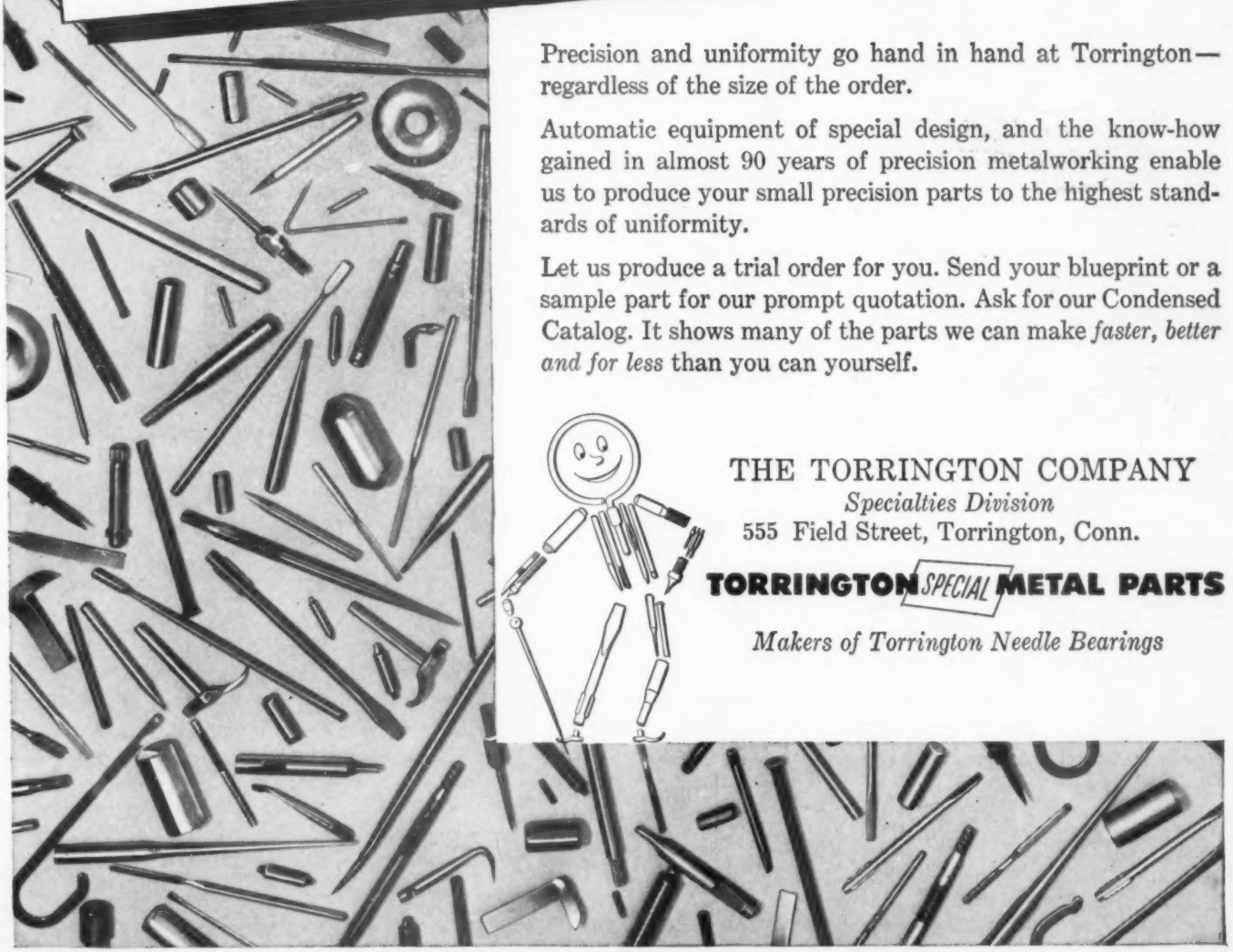
Automatic equipment of special design, and the know-how gained in almost 90 years of precision metalworking enable us to produce your small precision parts to the highest standards of uniformity.

Let us produce a trial order for you. Send your blueprint or a sample part for our prompt quotation. Ask for our Condensed Catalog. It shows many of the parts we can make *faster, better and for less* than you can yourself.

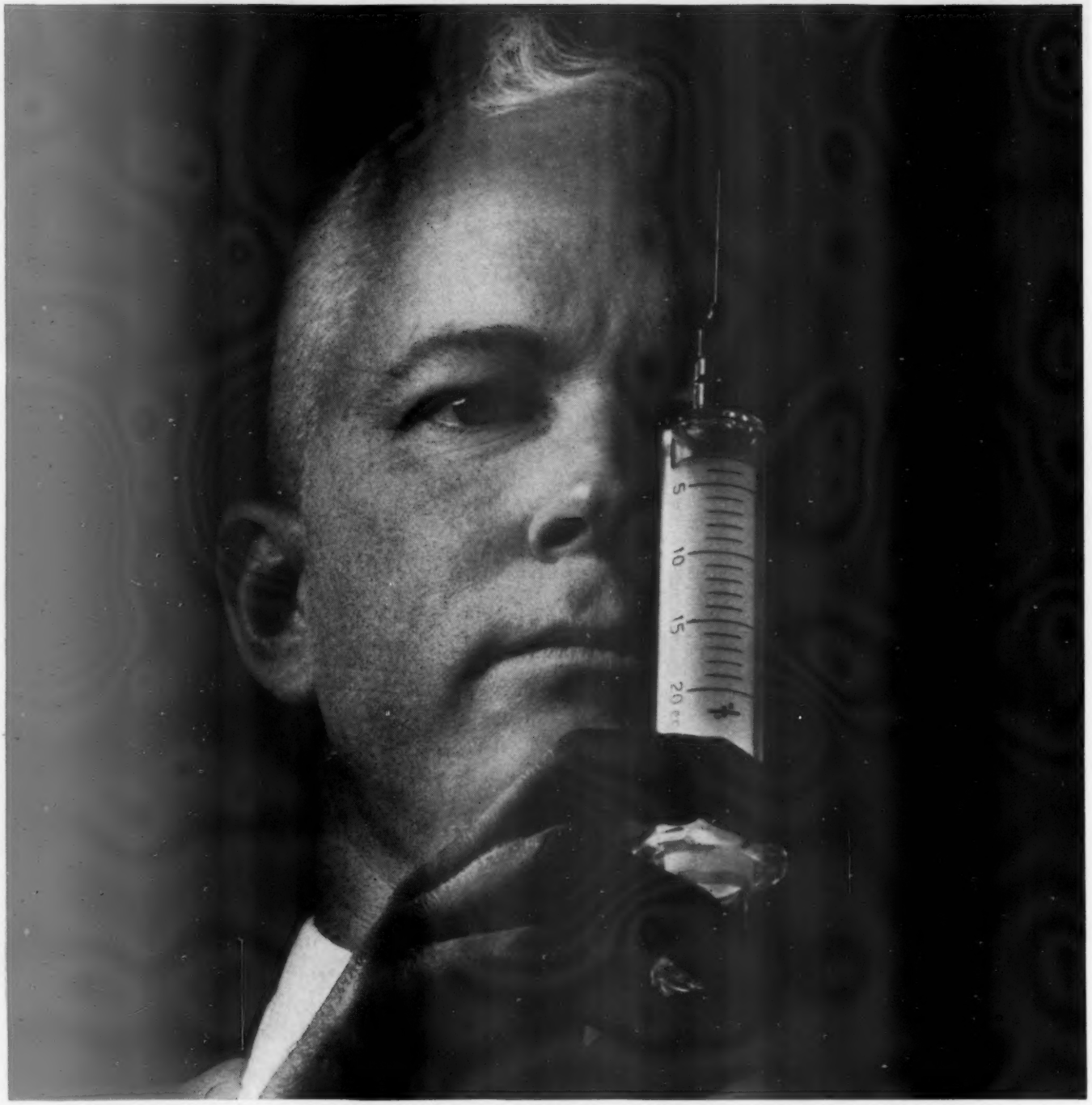
THE TORRINGTON COMPANY
Specialties Division
555 Field Street, Torrington, Conn.

TORRINGTON *SPECIAL* **METAL PARTS**

Makers of Torrington Needle Bearings



For More Information Circle No. 192 on Inquiry Card—Page 17



Henry P. Becton, Executive Vice-President of Becton, Dickinson and Company, explains

"Why a doctor must never be rushed!"

"A famous surgeon used to say to his young student doctors, 'A man with a severed carotid artery will bleed to death in three minutes. You can sew it up in two-and-a-half minutes — *if you're not in a hurry.*'

"Everyone who serves the medical profession must know how to be quick and sure. That's why Air Express is important to us at B-D. Our customers *must* be sure they can depend on us.

"A vaccination program, or a flood, fire or explosion can mean immediate need for hypodermic syringes and needles, elastic bandages, blood donor equipment. Air Express is the sure way to get it there.

"Air Express can save you money, too. A 20-lb. shipment from Rutherford, N. J., to Des Moines, Ia., for instance, is $8.12. That's the lowest-priced complete service by $1.48!"

Air Express

GETS THERE FIRST via U.S. Scheduled Airlines

CALL AIR EXPRESS . . . *division of* **RAILWAY EXPRESS AGENCY**

For More Information Circle No. 193 on Inquiry Card—Page 17

speeds delivery of precise Linear roto-molded "O" rings

AUTOMATION, the "push button" by-word of modern production, is now applied to the manufacture of "O" Rings. LINEAR'S new high-speed ROTO-MOLDING process produces true compression-molded quality rings at mass production rates and costs.

ROTO-MOLDING is fully automatic . . . eliminates human error. You get precisely uniform "O" Rings —every one a perfect circle, produced to your exact specifications. Moreover, ROTO-MOLDING assures rings with a tough, homogeneous grain structure, flash-free surface, and dimensional stability with improved physicals.

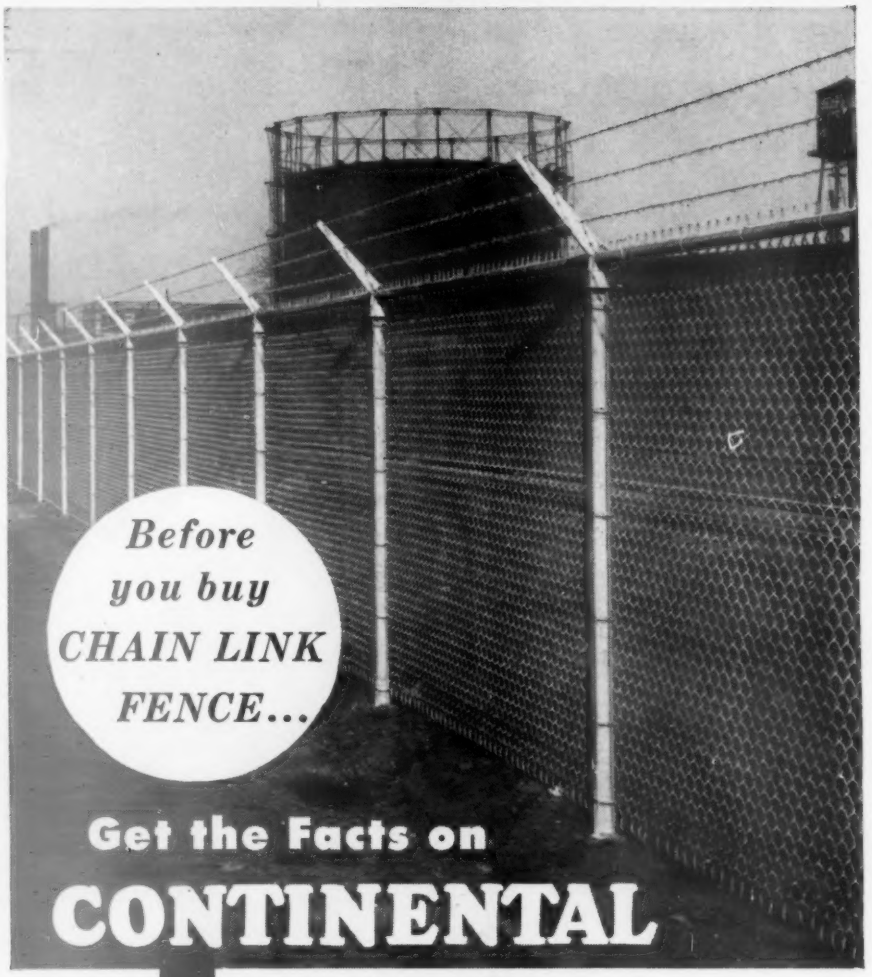
Emergency commitments of LINEAR ROTO-MOLDED "O" Rings can now be delivered in a fraction of the time previously required for premium quality rings. You can order in a wide variety of standard and special sizes and compounds, including the newest silicones. Get the facts now!

"PERFECTLY ENGINEERED PACKINGS"

LINEAR

LINEAR, Inc., STATE ROAD & LEVICK ST., PHILA. 35, PA.

For More Information Circle No. 194 on Inquiry Card—Page 17



THE ONLY FENCE MADE OF KONIK STEEL

Increased Rust Resistance and greater tensile strength for longer Fence Life

Konik Steel is a special alloy containing Copper, Nickel and Chromium for increased rust resistance and greater tensile strength. That's why in Continental Chain Link Fence you get longer fence life, stronger protection, finer appearance—and *low upkeep costs!* In addition, Continental Fence is Bright-Galvanized after weaving for *extra* years of added protection. The H-Section line posts are 15% heavier. All posts are set in solid concrete for permanent alignment. These and other distinct features add up to positive extra value—and are reasons why so many large firms and institutions have specified Continental Fence. *Get the facts about Continental now!*

Latest Edition of "PLANNED PROTECTION" now available—write for your copy today.

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STEEL CORPORATION · KOKOMO, INDIANA

PRODUCERS OF Manufacturer's Wire in many sizes, shapes, tempers and finishes, including Galvanized, KOKOTE, Flame-Sealed, Coppered, Tinned, Annealed, Liquor Finished, Bright, and Special Wire. Also coated and uncoated Steel Sheets, Nails, and other products.

For More Information Circle No. 195 on Inquiry Card—Page 17

Also Noted . . .

Sandusky Abrasive Wheel Co., Sycamore, Ill., is introducing four types of rubber bonded **polishing wheels** to meet a wide range of jobs on metal, wood, plastics and glass. Because of the high strength rubber bond, the wheels may be operated at almost twice the speed of most bench polishers, permitting faster work with worker safety.
Circle No. 69 on Inquiry Card—Page 17

Hanson - Van Winkle - Munning Co., Matawan, N. J., announces a round **lead anode** for use in Chromium plating baths. It is designed to give better current distribution over the entire anode area, permitting faster plating. Made of virgin tin and lead, blended into a special alloy, the anode eliminates selective corrosion caused by foreign metal inclusions.
Circle No. 70 on Inquiry Card—Page 17

A plastic **throw-away inkwell for strip-chart recorders** has been introduced by Instrument Dept., General Electric, Schenectady, N. Y. The devices in three models—portable, semiflush or surface mounted—chart a continuous record of electrical quantity against time. The throw-away inkwell holds 3 oz of ink, triple the open type well.
Circle No. 71 on Inquiry Card—Page 17

A **floor treatment,** for wood floors or concrete, is a fast drying combination seal and finish. It enables a floor to be opened to traffic four hours after treatment is applied so that a building operating on a day schedule can refinish floors overnight with no work interruption. Hillyard Chemical Co., St. Joseph, Mo., make it.
Circle No. 72 on Inquiry Card—Page 17

To liberate valuable metal from the dross that forms on molten type metals, American Smelting & Refining Co., 120 Broadway, New York 5, N. Y., has developed a plastic type of **flux,** trade named Savaloy. A 4¼″ stick of the flux is enough to treat 2000 lb of metal. When flux is applied, the dross is left as a dry powder to be easily skimmed off surface of melt.
Circle No. 73 on Inquiry Card—Page 17

Browne & Sharpe Mfg. Co., Providence 1, R. I., has on the market two chrome finished **rules,** one of flexible and one of tempered steel. Graduated in .10″ as well as .02″ they make it possible to transfer blueprint measurements in decimal parts of an inch without any computation.
Circle No. 74 on Inquiry Card—Page 17

A Company is known by the Washrooms it keeps

When a visitor sees a company washroom that is clean and modern—he feels instinctively that "this must be a good place to work."

Employees feel it even more strongly. For to them day after day, such washrooms indicate a thoughtful and appreciative management.

But there is more to an efficient washroom than modern facilities. The kind of supplies you provide there are important too. For instance, people dislike rough, flimsy, or inferior paper towels, and justifiably so.

Scott is the brand most people buy for their own homes. And a ScotTissue Towel is a towel they like on the job. It's soft, absorbent—quick to dry completely—and economical too.

Let your local Scott representative or distributor give you the details. Scott also has a "Planned Poster Program" which helps to promote washroom cleanliness and cut towel consumption. This is yours without obligation—simply by writing the Scott Washroom Advisory Service,® Scott Paper Company, Dept. P-7 Chester, Pa.

It's good business to use

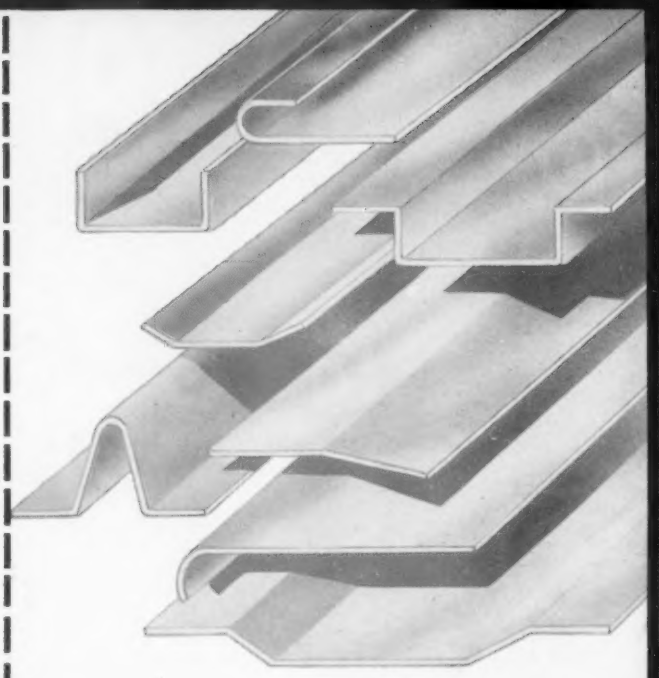
SCOTTISSUE® TOWELS

For More Information Circle No. 196 on Inquiry Card—Page 17

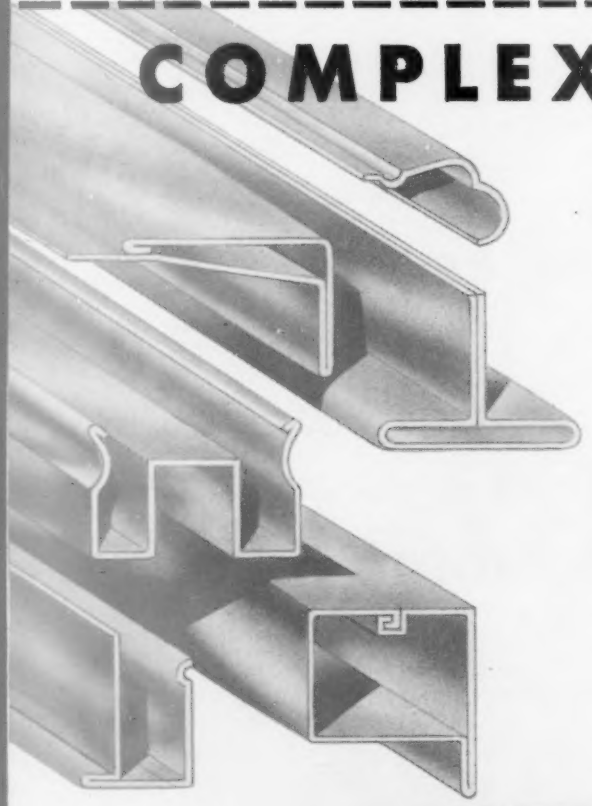
SHAPES

SIMPLE

OR



COMPLEX



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Perhaps your metal shape specifications are simple, but economical volume is your problem. Roll Formed engineers will recommend a gauge and size that will do the job well and allow you increased profit. If you need complex shapes, our facilities for designing any form are at your disposal. Let Roll Formed study your fabricating requirements and show you how to reduce your assembly costs by using our shapes. We can furnish any shape from carbon, stainless or galvanized steel, aluminum, copper, zinc or clad metal. It will pay you to investigate.

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MAIN OFFICE AND PLANT · 3753 OAKWOOD AVE., YOUNGSTOWN, OHIO

For More Information Circle No. 197 on Inquiry Card—Page 17

Office Equipment and Supplies section of PURCHASING Magazine

JULY, 1955

Simple, modern and functional furniture is the keynote of the office of Rockwell Manufacturing Company's Director of Purchasing and Traffic, C. Warner McVicar.

PURCHASING MAGAZINE—A CONOVER-MAST PUBLICATION
205 EAST 42ND STREET, NEW YORK 17, N. Y.

OFFICE EQUIPMENT News

Xerography is now being used, for the first time, in the preparation of spirit and fluid-type duplicating masters, according to an announcement from **The Haloid Co., Rochester, N. Y.** Previously, xerography was used only for the preparation of offset paper masters, transluscent intermediates, and single copies. In the new method, the image of an original is transferred, through a XeroX camera and XeroX processor onto a XeroX plate, and then from the plate to the carbon sheet of the master set. The final step is to run the two sections of the master set, consisting of the carbon and the blank sheet which will become the complete master, through an XeroX Flo-Set unit. In this apparatus, pressure and chemical vapor action combine to transfer and fuse the printing image from the carbon to the paper master. The Flo-Set units, the vital transferring medium in the new process, are now in production and will be available in 60 to 90 days. Descriptive literature on the new use of xerography in the liquid duplicating field is available from Dept. SD-1 of the Haloid Co.

Circle No. 75 on Inquiry Card—Page 17

A new, illustrated 32-page catalog of general office and stationery supplies and equipment, together with up-to-the-minute postal information, has been published by **Accountants Supply House, New York.**

Circle No. 76 on Inquiry Card—Page 17

International Business Machines Corp., New York, has announced an all **transistorized computer** with several times the calculating speed and storage capacity of its experimental models. Called the 608, it uses magnetic cores, tiny doughnut-shaped objects, to "remember" information in its internal storage. The machine operates on transistors—germanium devices about the size of a paper clip—without the use of a single vacuum tube.

Circle No. 77 on Inquiry Card—Page 17

Wall-mounted master stations and economical single amplifier operation are among the features of an **intercom system** recently introduced by **Executone, Inc., New York.** Called the 6000 Electronic Intercom System, the master stations can be desk or wall-mounted, may originate calls to 5 other master stations, and may accept and reply to calls from any number of similar stations. An economical central amplifier, drawing only as much current as a 30 watt bulb, is the only unit in the system that requires an electrical outlet. In addition to two-way intercommunication, the system also provides complete paging facilities.

Circle No. 78 on Inquiry Card—Page 17

Technifax Corp., Holyoke, Mass., is marketing a new **developer** for ammonia-developing diazotype (white-print) materials. Called the Technifax Dry Developer, it is designed for those companies already owning satisfactory ultra-violet type printers, or firms whose needs do not require a combination printing and developing unit. It accommodates material up to 24" wide, and operates at a constant speed of 6' per minute.

Circle No. 79 on Inquiry Card—Page 17

How to get more from punched-card methods with modern Remington Rand machines is described in a new, 6-page, illustrated folder released by **Remington Rand Inc., New York.** The complete line of Remington Rand punched-card machines is listed in an easy-reference chart form showing their use in preparation of records for billing, receivables, sales, payroll and production. The folder is TM 930.

Circle No. 80 on Inquiry Card—Page 17

Although originally announced a year ago, the Colitho Application Idea Folio of **Columbia Ribbon & Carbon Mfg. Co., Inc., Glen Cove, N. Y.,** has been expanded to include 18 additional application idea sheets. They are grouped in six general application categories: buying, converting, selling, accounting, institution-government, and miscellaneous applications. The folio is offered free.

Circle No. 81 on Inquiry Card—Page 17

(*Please turn to page* 170)

New Line of Steel Desks— The Aristocrat by Remington Rand

Made in our Own Plant...New Beauty of Modern Styling... New Quality Construction Throughout...New Attractive Finishes

This new line of steel desks is plus-engineered for functional efficiency and long term value, built in the Remington Rand tradition of craftsmanship and quality.

Note the particular excellence and beauty of its modern styling ...its exceptional dignity...the functional refinement in every detail – for instance, the new type, smartly styled, recessed drawer pulls which provide such a comfortable hand grasp.

Equally, the new Aristocrat desk is a *masterpiece of engineering.* With its unit type of construction, all sections of each Aristocrat are interchangeable. Tops, drawers and pedestals can be easily reassembled to meet varying requirements. The new-design center drawer lock releases all drawers by a mere quarter-turn of the key – *no movement of the center drawer necessary!* A feature of the island base permits heights to be adjusted from 29″ to 30½″.

New Decorator Colors

This new desk line not only comes in exclusive Gray-Rite, but also in two new soft pastel colors – Heather Beige and Surf Green. This range of beautiful modern colors makes possible a choice that will harmonize with and complement any office decor.

Get the new booklet showing the full Aristocrat Desk Line. Simply circle FF187 on the coupon.

Executive Desk is impressive in appearance. Spacious oversize top with 9″ overhang at both ends and rear affords comfortable seating and writing space for participants in conference. Top 78″ x 38″. Also comes without overhang 60″ x 30″.

New Revised Edition of Purchasing Methods Manual

The new up-to-date edition of this methods manual, which has been used by thousands of purchasing officials to develop more efficient, less costly methods, is just off the press! Now more than ever, it is imperative for you to have the best record-keeping tools to handle your ever-widening responsibilities. Get your free copy

of this valuable illustrated booklet—"Purchasing Procedures That Save Time And Money"—circle X1202 on the coupon.

Remington Rand
DIVISION OF SPERRY RAND CORPORATION

Room 1754, 315 Fourth Ave., New York 10

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P-11

Profit-Building **IDEAS** For Business

For More Information Circle No. 198 on Inquiry Card—Page 17

NOMA Exhibit Shows Today's Modern Office Equipment

"CONTROLLING Office Costs" was the theme of the recent 36th International Conference and Exposition of the National Office Management Association held in Toronto, Canada. Supporting this idea, and the words of the conference speakers, was a fine display of some of the most modern office equipment manufactured. To the visitor, it was evident that office equipment manufacturers are engaged in a constant search for more efficient machines and better means of handling office procedures.

While it would be an impossible task to list all new developments and improvements visible in the display area, some of the "show stoppers" must be discussed.

As is usual, electronic computers and other high speed devices drew record crowds. One of the most popular was the Univac 120 at the Remington Rand booth. Setup to actually operate on a complex accounting problem, the Univac was rarely without its crowd of viewers watching its blinking tubes and flashing control panel. Nearby, too, an electronic sorter capable of selective sequencing and grouping of cards at a rate of 48,000 per hour was kept busy.

A truly condensed filing system was one of the focal points at the VISIrecord display. Using a combination of microfilm and the VISIrecord method, the system makes it possible to file the contents of five 4-drawer filing cabinets in a unit that can be carried in one hand. Positive prints, made from the microfilm, are attached to VISIrecord cards; each card being equivalent to a file folder holding 100 documents. In addition to an estimated 50% reduction of filing clerk time, 700,000 documents filed on 15,000 cards can be housed in an area 3 ft. by 13 ft.

Craig Machine, Inc., Danvers, Mass., used the NOMA show to display its new electric file. Operating on standard currents, it provides immediate access to filed material, delivering the material at desk level. Using a tandem principle, the electric file has a maximum of 4 seconds to complete a cycle. It averages 3 seconds to position a regular file tray at working level.

The Electrosumma Duplex was the star of the Olivetti Corp. of America exhibit. This machine is an electric adding machine with two registers that operate independently, or together. Entries made on either register can be totaled, or sub-totaled, and simultaneously transferred to the other register. There are two groups of operating keys. Each group contains the total and subtotal keys of one register and the plus and minus keys of the other. Thus the operation of adjacent keys can total and transfer simultaneously.

The new Thermo-Fax "Secretary" copying machine was the drawing card for the Minnesota Mining &

Remington Rand's 99 Printing Calculator is put through its paces.

A demonstration at the IBM display attracts an attentive audience

Manufacturing booth. Using the same basic "heat" principle of the console-type Thermo-Fax, the desk-top "Secretary" produces direct copies of any original material in only four seconds. The machine, about the size of an electric typewriter, uses normal 110 volt A.C. current for its one operation copy.

The big IBM booth showed a wide variety of the company's products—from its paging systems and time stamps, through its electric typewriters, to a mock-up model of an electronic computing installation.

Victor Adding Machine Co. found the NOMA show an ideal place to exhibit its new Mult-O-Matic figuring machine. A series of selection keys provide rapid operation for simple multiplication, chain multiplication, total transfer multiplication, negative multiplication with constant, and multiplication by constant as well as a variety of other important accounting operations. A specially prepared schedule of problems was used by the Victor-McCaskey Ltd. demonstrators to show the figure-ability of the machine.

Elsewhere, at the big exhibit Addressograph-Multigraph ran demonstration on many of their machines. One that drew considerable comment was the Addressograph Form Writer and Printer. This machine prints a form, fills the form in with a variety of information, and then perforates the form vertically and/or horizontally. All this is done in one operation. Starting from blank paper, business records such as bills, statements, checks, labels, etc. can be completed on a production line basis at speeds up to 100 per minute. According to the firm, it will considerably reduce expenses of buying, storing and taking inventory of pre-printed forms.

At the Royal McBee booth, many of the firm's systems as well as its machines were tastefully displayed. A pink electric typewriter, on a pedestal, was almost under constant use and often caused traffic jams in the aisle.

High-speed tabulating equipment of its Samas Division was one of the prime spots of the Underwood exhibit. Elsewhere, banks of typewriters and adding machines were provided for close examination of demonstrations.

In the dictating machines field, most of the top manufacturers were represented. And, while the individual dictating machines were in great evidence, much of the accent was on "network" dictation. Using telephone-type instruments, dictating machine exhibitors demonstrated the effectiveness of using several stations on one recording device to handle small volume dictation from several people.

While virtually every process of duplication was represented, most of the exhibits in this field placed their emphasis on new developments to speed up the preparation of masters and the general handling of preparatory operations. Also of considerable interest to the visitors was a demonstration of A. B. Dick's relatively new Azograph process for fluid duplicators. For many people, this was their first real view of the new, clean, duplicating method.

Not too far from Royal's pink typewriter was a display bank of new Burroughs ten-key adding machines—in color. Streamlined far more than any previous Burroughs machines, the new adders were shown in their four colors—sea mist green, alpine blue, capri coral and amber gray.

For all the visitors, there was much more to see. Collators, photocopying equipment, embossing devices, desks, chairs, filing systems, folding machines, payroll systems, scales, storage cabinets, and all types of equipment that make up the modern office were in evidence.

In summing up, it is perhaps best to quote from a resume issued by NOMA on one of the speeches at the conference. It aptly describes, not only the conference, but the exhibit as well.

"What is the office? It is not merely an area set aside in a company for desks and files and machines and people. The office is a function. It takes place everywhere —in the plant, in the warehouse, in a wayside diner where a salesman writes up his customers' orders. How can the cost of this function be controlled? Only by intelligent application of the science of office management — simplifying, eliminating, revising, improving."

It was toward these ends, that the variety of office equipment was exhibited.

A desktop copying machine at the Bruning booth was an important stop for this lady NOMA delegate.

Serious-minded visitors keep one of Underwood's demonstrators busy pointing out the features of her machine.

Inside Tip on why secretaries

"The Silver Tip keeps my fingers clean and saves time in changing ribbons"

There's nothing that irritates secretaries more than fingers smudged with ink from changing ribbons. And when secretaries are unhappy, production slows down.

Carter's exclusive Silver Tip Clean End keeps fingers clean when ribbons are changed. It also eliminates "washing up" time, and prevents smudgy fingerprints on clothing and papers.

The famous Silver Tip is just one of the reasons for using Carter's Typewriter Ribbons. The others are more uniform ribbon inking, finer quality ribbon fabric, longer wear and sharper impressions all along the way.

You'll find a Carter Typewriter Ribbon for every make machine and every taste. You have a choice of single and bi-color ribbons in Cotton, Silk and Super Nylon.

Switch to Carter's today, then notice the improvement in your correspondence, and the contentment of your secretarial staff.

THE SILVER TIP
. . . the secret of smudge-free fingers

like to use CARTER'S ribbons

The only quality line of ribbons with the "clean end" Silver Tip

You've purchased enough office supplies to know that the lowest priced item is not always the best buy.

That holds true in typewriter ribbons, too. A high grade, uniformly inked typewriter ribbon, like any of these Carter brands, stands up long after so-called "economy" ribbons are dry, shredded and useless.

And, for letters with that sharp, brilliant executive look, for longer wear, for clean easy ribbon changing . . . ask for Carter's Typewriter Ribbons with the Exclusive Silver Tip.

Be Smarter... Buy Carter's

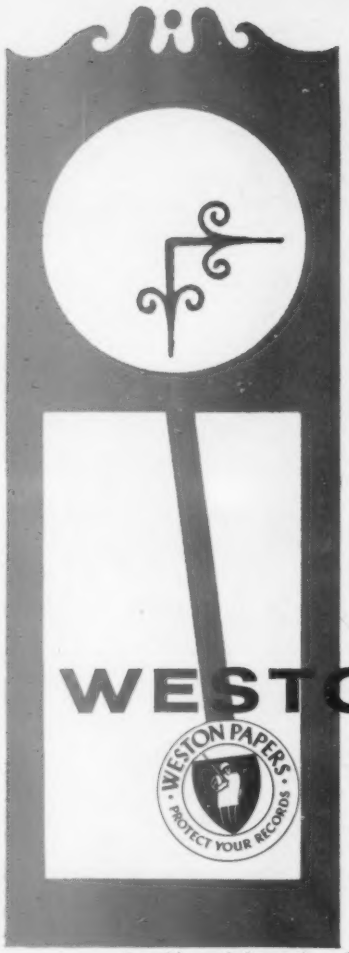
typewriter ribbons!

Call your local Stationer or Office Outfitter

THE CARTER'S INK COMPANY

CAMBRIDGE 42, BOSTON, MASSACHUSETTS

For More Information Circle No. 199 on Inquiry Card—Page 17



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WHITE
the right time for better letterheads?

With the *new, brighter white* in WESTON BOND, *now is the time* to switch to perfection in rag content paper. For distinctive character and attractive economy in letterheads with matching envelopes, ask your printer for

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free: Sample Book. Write Dept. PN

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DALTON, MASSACHUSETTS

Makers of Fine Papers for Business Records Since 1863

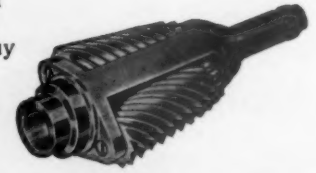
For More Information Circle No. 200 on Inquiry Card—Page 17

JUST A MINUTE

Is all it takes to completely revitalize your Apsco Pencil Sharpeners with Apsco's revolutionary new development, the "COMPLETE" CUTTER HEAD ASSEMBLY.

Now, in one convenient, clean operation, office personnel can remove the worn, dull cutter head and replace with the new. Ask your stationer for a demonstration, then order and stock an adequate supply for quick, easy replacement.

Specify, too, Apsco Pencil Sharpeners, Staplers, and Punches. It costs less to buy the best.



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For More Information Circle No. 201 on Inquiry Card—Page 17

The Gray Mfg. Co., New York, is offering a booklet describing the modern method of electronic dictation. Called, "The Miracle of Pushbutton Paperwork", the 12-page, illustrated booklet highlights the use of Gray PhonAudograph III.

Circle No. 82 on Inquiry Card—Page 17

The Frederick Post Co., Chicago, has announced a new process for manufacturing a patented **tracing medium** with film-like transparency. The paper, called PTM, looks like a film and prints like a film. A fact-file on PTM is available from the company.

Circle No. 83 on Inquiry Card—Page 17

Two-face **chalkboards** offered by **Keasbey Corp.,** an affiliate of General Ceramics Corp., Keasbey, N. J., are available in colors and feature improved writing qualities and easier cleaning. The ceramic coating on specially prepared steel eliminates breakage. Also, the steel core allows the use of magnets to hold papers to the board. Two chalk sides, or one chalk side and one crayon side, can be supplied. The boards cannot crack or chip, come in widths up to 48" in a wide choice of colors.

Circle No. 84 on Inquiry Card—Page 17

An **adjustable desk stabilizer** designed to eliminate vibration and improve typewritten work by changing a wobbly stand into a firm platform, has been announced by the Supply Division of **Underwood Corp., New York.** Of all metal construction, it is installed by means of an automatic self-locking mechanism. It extends from 17 to 31 inches.

Circle No. 85 on Inquiry Card—Page 17

The Parker Pen Co., Janesville, Wis., has introduced a **liquid graphite pencil** called the Parker LLP. Holding graphite suspended in a liquid, the LLP will write an erasable lead line but will not dull or break its point, nor does it ever need sharpening.

Circle No. 86 on Inquiry Card—Page 17

The increasing popularity of ball point pens, and the recent introduction of the new ball point pencils, has brought about the introduction of a **ball point eraser** by **Weldon Roberts Rubber Co., Newark, N. J.** Known as Ball Point Eraser No. 38, it is elliptical shaped and green colored.

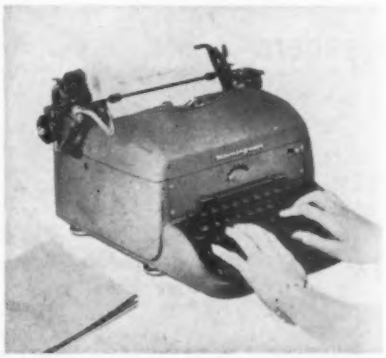
Circle No. 87 on Inquiry Card—Page 17

A **disc for dictation** is being marketed by **Magnetic Recording Industries, New York.** Called Travel-Disc, the recording medium can be folded and mailed in a standard envelope and is reusable over and over again. It is made of plastic and is pre-grooved for automatic, perfect, reproduction. It is an accessory for the Voice-Master line of magnetic disc dictations equipment.

Circle No. 88 on Inquiry Card—Page 17

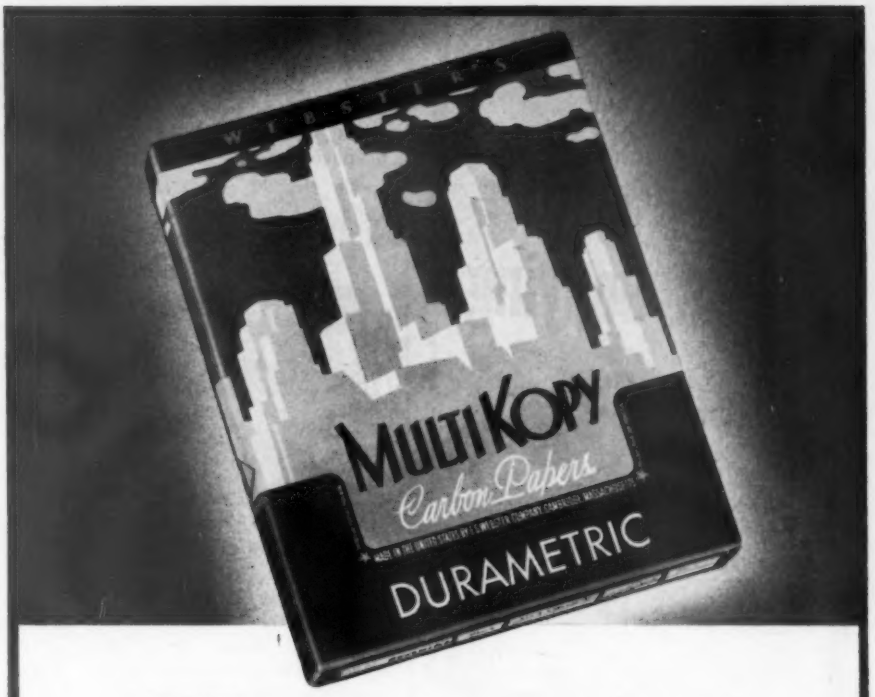
Cordley & Hayes, New York, manufacturers of electric water coolers, has named **Lawrence D. Toolan** as sales manager. He had been C&H's assistant sales manager.

The Waterman Pen Co., Inc., New York, has announced the election of two new vice presidents. **George C. Holt** is now vice president in charge of sales. He had been general sales manager, and was formerly vice president in charge of sales for Sheaffer Pen Co. **Elbert R. Faust,** formerly with the H. M. Harper Co., is now vice president in charge of manufacturing.



A new pressure printing feature is anunounced for the new **Noiseless Typewriter** released by **Remington Rand Inc., New York.** Slight pressure on the keys activates a precisely calculated weight which completes the pressing of the type onto the paper, leaving a uniform impression. Originally designed to cut down office noise, the new machine maintains all the features of previous Remington Noiseless Typewriters and is completely redesigned in appearance. New executive types are being offered and ribbons can be obtained in colors to harmonize with letterheads.

Circle No. 89 on Inquiry Card—Page 17



Who gets excited about Carbon Paper?

She does! The Secretary who uses Webster MultiKopy Durametric Carbon Paper knows that there are benefits for her built into every sheet. Especially the Micrometric Scale Edge! This uncoated edge measures the lines of space on a page — helps end "running over" and protects her fingers from carbon smudge. And Webster Shurflat formula, backing each sheet, prevents curling.

He does! Purchasing agents and office managers know that the balanced construction of Webster Durametric means extra wear for each sheet — real economy where it counts. Webster Durametric improves appearance, speeds up typing output and cuts down waste of materials. There is no better buy for discriminating purchasers.

We do! The F. S. Webster Company, pioneer in the carbon paper and ribbon field, has been first with countless features for improved office efficiency and economy. Webster Durametric is a recognized leader in the field as is the entire Webster line of carbons and ribbons.

Give Webster a try in your office — and YOU'LL be excited, too! Telephone or visit your stationer's or write to us for free sample.

CARBON PAPERS AND INKED RIBBONS BY

F. S. WEBSTER COMPANY

7 Amherst Street, Cambridge 42, Mass.

For More Information Circle No. 202 on Inquiry Card—Page 17

NEW Master Paper for Direct Copying Machines

gives you the *clearest, sharpest* copies yet!

EAGLE-A TRANSLUCENT BOND

Ideal master paper for Bruning, Ozalid, Pease and other direct-print machines. With Eagle-A Translucent Bond as your original sheet, you can get better copying results every time. The *improved* translucency of this new master paper gives you *cleaner, unclouded* copies of records and forms.

High in quality, low in cost! Made of selected fibers, Eagle-A Translucent Bond has a smooth surface excellent for writing, typing or printing . . . and strong durability. You'll want to test its quality, compare its low cost. Available through Eagle-A distributors.

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Clip this coupon to your letterhead

AMERICAN WRITING PAPER CORPORATION
HOLYOKE, MASS., DEPT. P

Send FREE *packet of Eagle-A Translucent Bond with printed samples and blank test sheets:*

NAME_____

TITLE_____

For More Information Circle No. 203 on Inquiry Card—Page 17

An unusually clean, black, **hectograph master unit** has been announced by **Columbia Ribbon & Carbon Mfg. Co., Inc., Glen Cove, N. Y.** Called Marathon Black Ready-Master Unit, it is exceptionally clean to handle, prepare, and duplicate.

Circle No. 90 on Inquiry Card—Page 17

A low priced, 42″ **whiteprint machine** has been announced by **Ozalid**, a division of General Aniline & Film Corp., Johnson City, N. Y. Called the Streamliner 400, the all-purpose copying machine will make direct copies of any translucent original up to 42″ wide, at synchronized printing and developing speeds up to 24′ per minute. Ozalid also announced a **new film** that bypasses photographic processing steps to produce a positive image directly from a negative. Called Ozalid Reversal Foil, it can be exposed and developed in seconds in an Ozalid machine.

Circle No. 91 on Inquiry Card—Page 17

The election of officers for the year 1955-56 took place at the recent annual meeting of the **Office Executives Association of New York. Alwyn W. Ogden,** office manager, Universal Atlas Cement Co., was named president, and **J. Arthur Grundy,** assistant manager, advertising-sales promotion, Remington Rand Inc., became executive vice president. **Rudolph Lang,** managing director of the National Business Show, was elected to his 6th consecutive term as secretary, and **P. S. Verwys,** national board of Y.M.C.A.'s, became treasurer. The OEA of N. Y. is a chapter of the National Office Management Association.

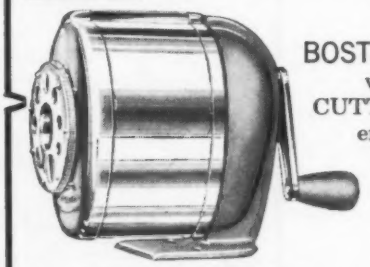
Herbert White, formerly representative and office supervisor of The McBee Co. in New York, has transferred to the **Royal McBee Corp., New York**, where he takes over an important assignment in the Systems and Procedures Department. He has been with McBee for more than 12 years.

The Ralph C. Coxhead Corp. has moved to 99 Park Avenue, New York 16, N. Y.

The board of directors of **Clary Multiplier Corp., San Gabriel, Calif.,** have asked the consent of the company's stockholders to change the corporate name to the Clary Corporation.

such a small investment to keep the office force efficient and happy . . .

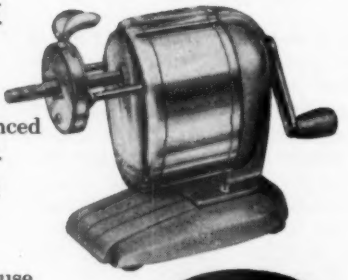
enough BOSTON sharpeners



BOSTON KS speeds efficiency with 30 BOSTON SPEED CUTTERS (competitive sharpeners have only 24)—takes 8 pencil sizes—BOSTON STOP prevents waste—die-cast stand.

CHAMPION PORTABLE

Ideal for metal furniture—30 BOSTON SPEED CUTTERS—automatic true-center feed with balanced tension—BOSTON STOP.



All BOSTONS guaranteed one year.

Send for free booklet on the care, selection and use of pencil sharpeners.

C. HOWARD HUNT PEN CO.
Camden 1, N.J.

Makers of SPEEDBALL *pens and products*

BOSTON PENCIL SHARPENERS

For More Information Circle No. 204 on Inquiry Card—Page 17

The Trig-A-Tape Corp., New Rochelle, N. Y., has introduced a line of **portable label attachers** for one hand operation. A squeeze of the trigger on the lightweight unit cuts and attaches a self-adhesive paper label. The size of the labels are either ¾" by 1⅛" or ¾" by ⅝". They can be written on with pen, pencil or crayon.

Circle No. 92 on Inquiry Card—Page 17

New **office furniture** known as the Aristocrat Steel Desk Line has been announced by **Remington Rand Inc., New York.** In addition to Remington Rand's Grayrite color, all units will be available in Heather Beige and Surf Green, with other colors on a special basis. All edges and corners of the Aristocrat products are rounded and smooth, and the appearance is further enhanced by recesses behind the drawer pulls. Tops, pedestals, drawers, panels, back panels and bases are available as basic units and can be assembled to produce different sizes and types of desks and tables. The equipment is made from heavy gauge furniture steel.

Circle No. 93 on Inquiry Card—Page 17

Low-cost, **offset printing plates** for office-type duplicators can now be produced in one minute with a direct-image paper plate and the Verifax Copier of **Eastman Kodak Co., Rochester, N. Y.** By using direct image instead of ordinary copy paper, a master is produced which can be placed on an offset duplicator for printing hundreds of copies. A paper plate for the method is marketed by the **Polychrome Corp., Yonkers, N. Y.**

Circle No. 94 on Inquiry Card—Page 17

MODEL 444

You can't go wrong on this guaranteed* desk set . . . with its giant ink fountain-base that automatically fills the pen and keeps it ready to write a full page or more whenever you take it from its socket.

*** 30-DAY MONEY-BACK TRIAL OFFER**

Your regular dealer will be glad to let you try one of these fine Model 444, Self-Filling Desk Pens on your own desk for 30 days with the understanding you can return it for a full refund if you don't agree it's the best you've ever used.

CHOOSE THE RIGHT POINT FOR THE WAY YOU WRITE...BY NUMBER

Fine writing
2556
Bookkeeping
2550
Medium stub
9314M
Carbon copies
(Also public counter use)
9460
Extra Fine
9550
General writing
2668

Esterbrook® DESK PEN SETS

THE ESTERBROOK PEN COMPANY, CAMDEN 1, NEW JERSEY

The Esterbrook Pen Company of Canada, Ltd., 92 Fleet Street, East; Toronto, Ontario

COPYRIGHT 1955, THE ESTERBROOK PEN COMPANY

For More Information Circle No. 205 on Inquiry Card—Page 17

AMONG THE Associations

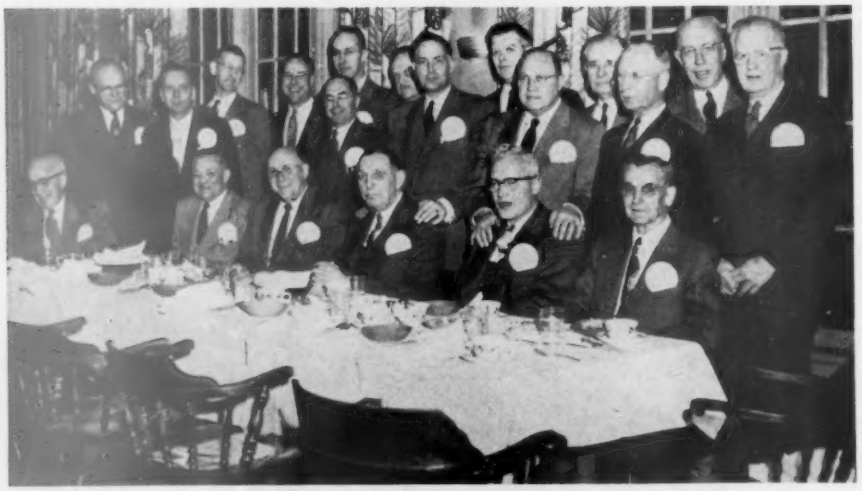
Eastern New York Ass'n Holds Executive Night

A little relaxation was first on the program at the Executive Night Dinner of the Purchasing Agents Association of Eastern New York. Here, some of the fellows gather in a corner for a few minutes.

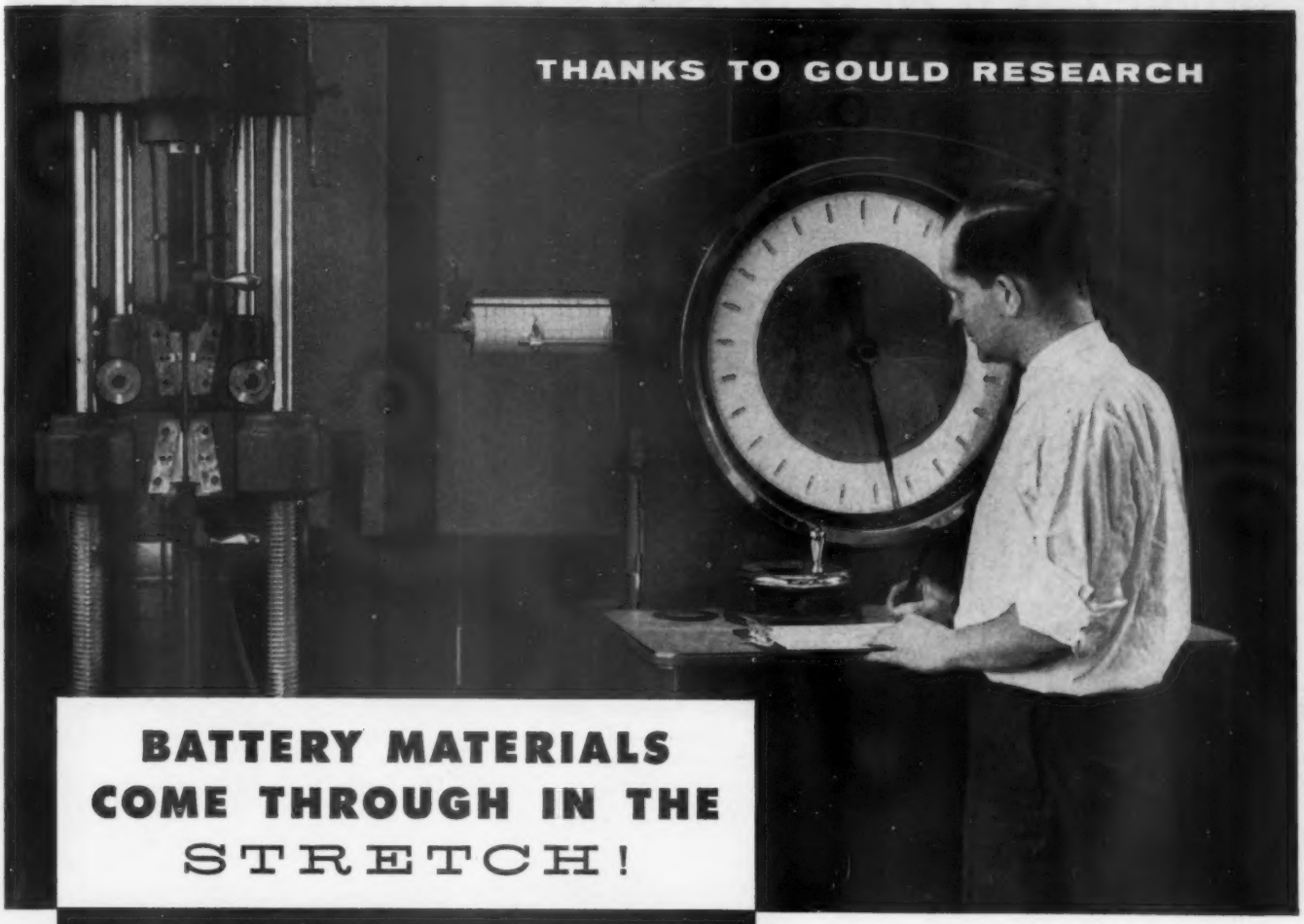
Nearly 200 members and guests gathered at the DeWitt Clinton Hotel in Albany, recently, for the 21st annual Executives Night of the Purchasing Agents Association of Eastern New York. Following a friendly social hour and a satisfying banquet, the group was greeted by Frank E. Plumley, president of the association. Mr. Plumley introduced N.A.P.A. President Howard Ahl and District Vice President Frank Whyte, who were guests at the head table. Following a report by Ken Gordinier, the association's national director, on the importance and value of the N.A.P.A. bulletin, Mr. Plumley introduced the speaker for the evening, Cameron Ralston. Mr. Ralston, who has spent much time in attempting to smooth out differences between labor and management, called for a re-evaluation of labor-management standards. Pointing out the progress achieved in the U. S. through a profound knowledge and use of the capitalistic system, he declared that a return to the full practice of free-enterprise is essential to the life of our nation. Acknowledging that the "horse and buggy days" are gone forever, Mr. Ralston stated that only through the acceptance of clear, honest thinking on the part of both labor and management, can we continue forward and provide the American people with a continuance of the standard of living that has become the envy of the world and the mark of success of our nation.

(*Please turn to page* 180)

Clyde Womer (left), secretary of the association, gets into a discussion with fellow-member A. Reed Cole.



At a special meeting held at Wolferts Roost Country Club, Purchasing Agents Association of Eastern New York honored its past presidents. And, as the picture indicates, about twenty years' worth were on hand. Included are Robert S. Harris, Frank M. Roos, Clarence W. Mullaney, Raymond H. Pettegrove, James Elder Jr., T. Carroll Latham, George W. Browne, Henry J. Funk, Conrad P. Spuck, J. Leland Hodgkins, Charles F. Straney, George L. Brown, Amos K. Munson, Claude R. Freisner, George B. Tod, Harold H. Frair, Erle A. Phelps, Harry T. Lieberman, Theodore Ten Eyck, and Kenneth B. Gordinier.



BATTERY MATERIALS COME THROUGH IN THE STRETCH!

BIG REASON WHY YOU GET MORE DURABLE BATTERIES FROM GOULD

Shown above is a tensile strength testing machine in the Gould Battery Research Laboratory at Depew, N.Y. It is capable of exerting a pull of 10,000 pounds on any material. Gould uses it to make sure that every component of a Gould Battery—grids, connectors, posts, jars—has strength and ruggedness far above required standards.

Thanks to this and many other instruments of research, Gould Batteries are capable of delivering better performance under any conditions of service.

For the full story on Gould Research, send for Booklet 749.

"BETTER BATTERIES THROUGH RESEARCH"

America's Finest!
GOULD
Industrial Truck Batteries

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GOULD
Batteries

GOULD-NATIONAL BATTERIES, INC.
TRENTON 7, N. J.

Always Use Gould-National Automobile and Truck Batteries

For More Information Circle No. 206 on Inquiry Card—Page 17

Denver Ass'n Host to District Council Meeting

In the foreground at the District 3 meeting in Denver is Donald Foster of Midwest Metal Stamping Co., Kellogg, Ia. He is "backed up" by Harold J. Jungbluth of Milwaukee's Oilgear Co., Carl Failmezger of Socony Vacuum Oil Co., W. K. Reed of Black, Sivalls & Bryson in Kansas City and Denver President Allen T. Woodward. Seated nearby were G. C. Minehart of Twin Disc Clutch Co. of Rockford, Ill., W. M. Davis of Moline, Ill. and Wayne Webster of Kansas City's Interstate Securities Co.

The Purchasing Agents Association of Denver held a recent meeting at the Brown Palace Hotel in conjunction with the council meeting of N. A. P. A. District Three. At the council meeting, Walter Armstrong of the American National Bank and Trust Company of Chicago was chosen to succeed Fred Syburg of Chain Belt Co., Milwaukee as vice president of the district.

The regular meeting of the Denver Association was held in the dining hall of the Colorado School of Mines in Golden. Professor Painter of the school's Engineering Department demonstrated the use of stroboscopic light to produce "Hallucinations in Technicolor." Several members cooperated with Professor Painter as subjects and each described geometrical images in color and in motion which he saw with his eyes closed in front of a light being flashed at various intervals by Professor Painter. The group then toured the school's new chemistry building where Professor Paul Keating demonstrated ways to identify various gems and stones. He also demonstrated how gem stones having essentially the same mineral content can have values ranging from $6 per carat to $1200 depending upon color.

The Denver Association recently announced the winner of its annual award for the outstanding student in purchasing. This year's winner is Thomas Wakefield Hirtle of Freeport, Ill. Mr. Wakefield is a senior at the University of Colorado with a combined business and engineering major. He has also been honored by being nominated as outstanding senior in the College of Engineering.

On June 11, the Association held its annual Ladies Night Party at the Denver Athletic Club. Some 90 couples spent a very enjoyable evening.

New members of the Denver group include Edgar G. Wright of Silver Engineering Works and Melvin Glatiz of Fox Intermountain Amusement Corp.

Fred Syburg Addresses Central Iowa Ass'n

There was a good turn out for the luncheon meeting of the Central Iowa Association at the Ottumwa Country Club. Officers are, left to right: O. W. Diemer, R. L. Sampson, Fred Syburg (District Vice President), G. R. Barcus, Donald R. Foster, and W. L. Howlett.

A recent meeting of the Central Iowa Purchasing Agents Association will be remembered by PAs as one of the most successful of the 1954-5 season. It began with a luncheon at Ottumwa Country Club. Members were guests of the John Deere Ottumwa Works. They were then taken by bus to John Deere's plant for a tour of the facility. The manager of the plant, Don Cook welcomed the group and outlined some of the highpoints of the plant's facilities. PAs saw all phases of the work in this factory which employs 2200 and manufactures both haying tools and 155mm projectiles for the U. S. Government.

Following the tour, there was a coffee break, a question and answer period, and then the group was returned to the Country Club for a social hour before the evening banquet.

After an excellent meal, mem-

(*Please turn to page* 180)

For More Information Circle No. 207 on Inquiry Card—Page 17→

It's outstanding!

EVERY MANUFACTURER who tries Roebling high carbon flat spring steel discovers the same thing... that this spring steel is absolutely unexcelled for dimensional and mechanical uniformity... for speeding production and cutting down rejects.

You always *pay* for the best when you buy flat spring steel... make sure you *get* it by specifying Roebling. John A. Roebling's Sons Corporation, Trenton 2, N. J.

Empire State Building, world's tallest building.

ROEBLING CF&I

A subsidiary of The Colorado Fuel and Iron Corporation

BRANCHES: ATLANTA, 934 AVON AVE. • BOSTON, 51 SLEEPER ST. • CHICAGO, 5525 W. ROOSEVELT RD. • CINCINNATI, 3253 FREDONIA AVE. • CLEVELAND, 13225 LAKEWOOD HEIGHTS BLVD. • DENVER, 4801 JACKSON ST. • DETROIT, 915 FISHER BLDG. • HOUSTON, 6216 NAVIGATION BLVD. • LOS ANGELES, 5340 E. HARBOR ST. NEW YORK, 19 RECTOR ST. • ODESSA, TEXAS, 1920 E. 2ND ST. • PHILADELPHIA, 230 VINE ST. • SAN FRANCISCO, 1740 17TH ST. • SEATTLE, 900 1ST AVE. S. • TULSA, 321 N. CHEYENNE ST. • EXPORT SALES OFFICE, TRENTON 2, N. J.

PHOTO BY MCMANUS

Educational Buyers Hold Thirty-Fourth Annual Convention in New York City

Delegates take note of money saving opportunities in "Surplus Property." This subject was discussed by George Warren of the University of Maryland.

Workshop sessions are the most valuable part of any convention. Here delegates learn about "Making the Purchasing Manual" from Thomas A. Dodds of the University of Wyoming.

Educational buyers can get many new ideas by making a careful tour of the manufacturers' exhibits. There were twice as many exhibits this year as there were in 1954.

ALMOST 600 people, representing 225 institutions of higher learning, attended the 1955 convention of the National Association of Educational Buyers in New York City on May 2-4. The annual meeting, 34th to be held by the group, took place at the Biltmore Hotel.

The manufacturers' exhibit, a traditional feature of the affair, drew unusual visitor interest with especially attractive displays of various products. There were twice as many exhibits at this convention as in 1954.

The annual business officers conference session opened the convention on Monday morning, May 2. Speakers included Charles Hoff, vice president, University of Omaha on "Business Office Personnel Recruiting and Training"; Elmer Jagow, business manager, Concordia Teachers College, on "What Controls for Auxiliary Enterprises?"; and Robert B. Jenkins, assistant dean, School of Commerce, Accounts and Finance, New York University, on "The State of the Nation's Business." Clarence Scheps, comptroller, Tuland University, presided.

Dr. Henry T. Heald, Chancellor of New York University, was the principal speaker at the welcome luncheon, held in the Bowman Room of the Biltmore, Monday noon. Dr. Heald officially greeted the visitors on behalf of the city and its numerous educational institutions. He spoke of the many social and cultural advantages offered by the city, despite its size and apparent confusion. Speaking more generally, he warned of a possible crisis in higher education, and the necessity for greater financial support of universities by all segments of society.

Henry L. Doten, outgoing president of NAEB, presided, and The Very Reverend James A. Pike, Dean of the Cathedral of St. John the Divine, gave the invocation. Bert Ahrens, executive secretary, introduced a group of special consultants and "New York friends of NAEB."

The Monday afternoon general session was highlighted by the following addresses: "Planned Campus Expansion" by Dr. Olindo Grossi, dean, School of Architecture, Pratt Institute, and "Buying Construction Materials for Maintenance" by Clarence A. Smith, purchasing agent, University of Minnesota. A question period followed, under the direction of Mr. Ahrens. D. R. Kimrey, University of Oklahoma, presided at the session.

John F. Rhilinger, purchasing agent, Dartmouth College, opened Tuesday's session with a talk on "Inventories, Purchase and Control." Mr. Rhilinger said his recommendations were based on the following convictions.

(1) That emphasis should be placed on simplicity and flexibility in forms and procedures; (2) that the inventory operation should be designed with a view to using a minimum of personnel to operate efficiently; (3) that maximum efficiency will be realized if the responsibility for any inventory control system is delegated to the chief procurement officer; (4) that a beneficial controlled inventory system cannot be a "one man" operation but requires the cooperation of all concerned.

"Buying Fuel" was the subject of an address by Norman Sims, general purchasing agent, fuels, American Cyanamid Company. An abstract of Mr. Sims' remarks will appear in PURCHASING in August.

A strong attack on the principles of "fair trade" was made by John Schwegmann, Jr., president, Schwegmann Super Market of New Orleans.

(*Please turn to page* 184)

Satisfaction rests on the carton

The first requirement of a good shipping container is *protection*—and The Procter & Gamble Co., maker of Crisco, knows by experience that Union corrugated containers are dependable. Another important consideration is *merchandising effectiveness.* Good design and good printing combine to make this box a winner.

TRADE MARK UNION
INTEGRATED PLANNING
INTEGRATED PRODUCTION

UNION BAG & PAPER CORPORATION

CORRUGATED CONTAINER DIVISION • Box Plants: Savannah, Ga., Trenton, N. J., Chicago, Ill.

Eastern Division Sales Offices: 1400 E. State St., Trenton 9, N. J. • Southern Division Sales Offices: P.O. Box 570, Savannah, Ga.
Western Division Sales Offices: 4545 West Palmer, Chicago 39, Ill. • Executive Offices: Woolworth Bldg., New York 7, N. Y.

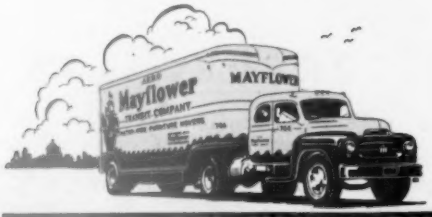
For More Information Circle No. 208 on Inquiry Card—Page 17

The Kind of a Service You'd Choose for Yourself

EASY for You...SAFE for Your Furniture

If you had to move to another city you'd want the finest moving service you could buy . . . one you could depend on to take the work and worry out of your move. The same is true of employees your company transfers to new locations. And it's good business to see that they get that kind of service. It means a quicker move, less time away from the job, no distracting worries and time-consuming details to settle. Mayflower moves are safe and easy. Let our nearby warehouse agent show you, or your associates how Mayflower can save time and money for your company!

AERO MAYFLOWER TRANSIT CO., INC. • INDIANAPOLIS



Mayflower's organization of selected warehouse agents provides on-the-spot representation at the most points in the United States and Canada. Your local Mayflower agent is listed in the classified section of your telephone directory.

NATION-WIDE FURNITURE MOVERS

For More Information Circle No. 209 on Inquiry Card—Page 17

Central Iowa Ass'n

(*Continued from page* 176)

Chatting in the Country Club lounge are Don Cook, Ray Barcus, and Fred Syburg.

bers were privileged to hear a talk by Fred G. Syburg. Mr. Syburg is director of purchases of the Chain Belt Company of Milwaukee and, at the time of the meeting, was District Three vice president of the National Association of Purchasing Agents.

Old Dominion Ass'n Elections

At the spring meeting, R. W. Rogers, general purchasing agent, Seaboard Airline Railway, was elected to succeed John E. Friend as president of the Old Dominion Purchasing Agents Association. Other officers elected include: Dr. E. M. Last, first vice president; Leon Norfleet, second vice president; C. C. Helms, secretary; Margaret Griffin, treasurer; and John Friend, national director. Directors include Earl Silver, Charles Hook, Guy Ringer, Marshall Robinette, and Robert Littrel.

Eastern New York

(*Continued from page* 174)

Frank Whyte (left), visiting district vice president, takes time out for a smoke and a chat with Don Poulin.

CUT THE COST

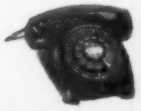
of "keeping things moving"

Money "goes down the drain" quickly when production slows or stops anywhere along the line. You can prevent production bottlenecks with *your own* "inside" telephone system!

The P-A-X Business Telephone System is a separate network of dial telephones—*owned* (not rented) to serve every part of your plant. Through P-A-X, executives and production supervisors can gather facts and issue instructions in seconds, to anticipate *and prevent* expensive roadblocks in production before they happen. P-A-X service is "person-to-person" contact in its fastest, most convenient form—reduces paperwork, saves time, *keeps things moving!*

Thousands of companies find that P-A-X is an investment that pays off, every working day. For an objective case study of P-A-X at work in a plant much like yours, write: Automatic Electric Sales Corporation, (HAymarket 1-4300), 1033 West Van Buren Street, Chicago 7, Illinois. In Canada: Automatic Electric Sales (Canada) Ltd., Toronto. *Offices in principal cities.*

Learn how a leading manufacturer uses P-A-X to improve production control—and cut costs. Write for a copy of this illustrated case study today.



AUTOMATIC ELECTRIC

ORIGINATORS OF THE AUTOMATIC TELEPHONE

For More Information Circle No. 210 on Inquiry Card—Page 17

"How do you keep production so steady?"

One reason: United Air Lines Air Freight

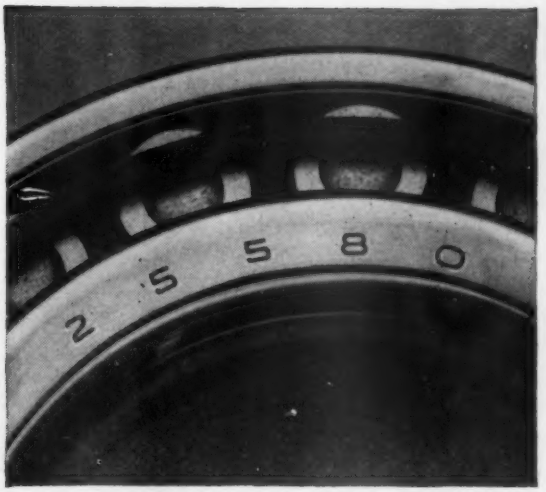
In order to maintain tight control over production schedules and prevent costly pile-ups of surplus material, many manufacturers now include fast, dependable United Air Lines Air Freight in their regular day-in, day-out operation. In this way production can be closely related to sales and inventory control, and the subsequent close timing pays off in real economy.

The most convenient way to make the most of air freight is to use United's Reserved Space Air Freight plan—which only United offers on all equipment. Reserved Air Freight moves on most of United's 254 daily Mainliner® flights and is offered after consideration of mail and express needs. Ask your nearest United office about its distinctive advantages. Or write for new booklet, "Industry's Flying Partner": United Air Lines, Cargo Sales Dept. C-7, 5959 S. Cicero Ave., Chicago 38, Illinois.

New world-wide Reserved Space Air Freight service available to 84 countries

For More Information Circle No. 211 on Inquiry Card—Page 17

If this number could talk...and it can!



THE NUMBER 25580 on the bearing cone, coupled with 25520 on the cup, tells you that this is a certain size of tapered roller bearing. With the trade-mark "Timken" also on the bearing, the number tells you about the bearing's fine quality and the services that go with it.

TO GET STEEL GOOD ENOUGH for Timken® bearings we make our own. We're America's only bearing manufacturer that does. And we make the steel nickel-rich for added toughness. Although we think it's the finest bearing steel used, we're always checking for ways to improve it. For example, the above x-ray diffraction unit to study residual stresses.

NAME YOUR REQUIREMENTS—we'll meet them from the 5,850 sizes and 26 types of Timken tapered roller bearings that we can make in any quantity. For quality, service and public acceptance, always specify "Timken" when you specify a bearing number. The Timken Roller Bearing Company, Canton 6, Ohio.

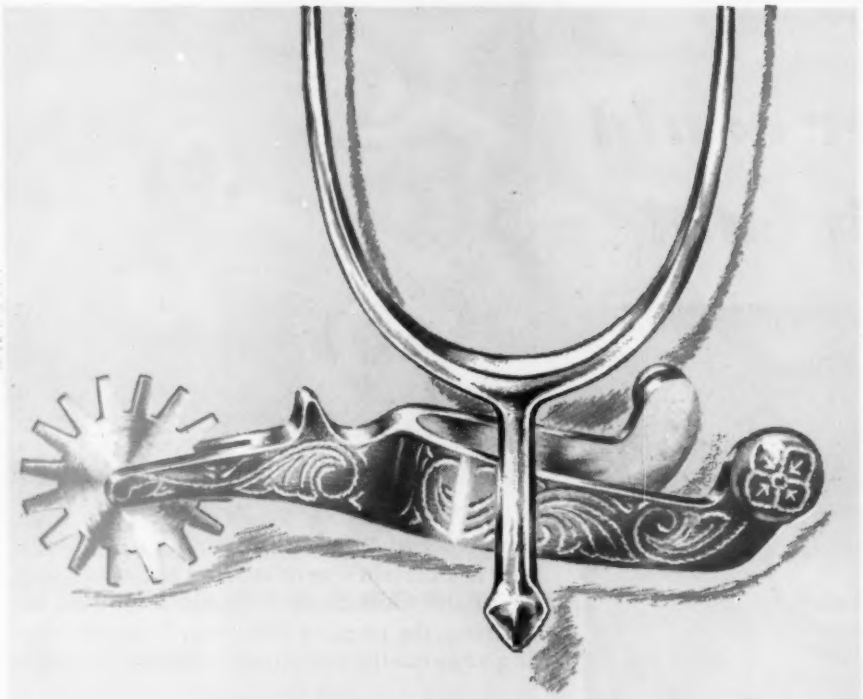
WE LEAVE NOTHING TO CHANCE. Every one of these bearing cones has already passed the most rigid inspections. Yet these women make an extra one. They take one last look for surface defects, too-tight or too-loose cages, and once more check the bore dimensions. This extra inspection is another step that makes Timken bearings the number 1 value in the products you build or buy.

Quality, service and public acceptance make TIMKEN number 1 for VALUE

TRADE-MARK REG. U. S. PAT. OFF.

NOT JUST A BALL ◯ NOT JUST A ROLLER ⬭ THE TIMKEN TAPERED ROLLER ⬭ BEARING TAKES RADIAL ⬭ AND THRUST →⬭← LOADS OR ANY COMBINATION →✳←

For More Information Circle No. 212 on Inquiry Card—Page 17



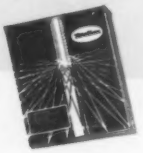
Choose one . . .

You can see at once that these spurs differ; serve different need. Suppliers differ. Titeflex was born and raised on a custom-engineering way of doing business. Fresh thinking comes naturally to them. Titeflex people like to tackle the tough ones.

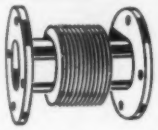
When you buy any Titeflex product you get something extra for your money—Titeflex interest in you. Take time to learn the difference. Send the coupon along today.

Titeflex

☐ Seamed and Seamless Metal Hose



☐ Ignition Harness and Shielding



☐ Precision Bellows

☐ Quick-Seal Coupling

TITEFLEX, INC.
Industrial Products Division
513 Hendee Street, Springfield, Mass.
Please send me without cost information about the Titeflex products checked above.

Name_____

Title_____

Firm_____

Address_____

City_____ Zone_____ State_____

Left—Western spur with 16-point rowel Right—English spur with straight rowel

For More Information Circle No. 213 on Inquiry Card—Page 17

Educational Buyers

(*Continued from page* 178)

"We have a minority of big businessmen who want free enterprise for everyone but themselves," he declared. For themselves, they want protection, subsidies, 'fair trade'. In this merchandising era, the 50% at least markup at the retail level guaranteed by 'fair trade' is not only legalized stealing from the customers, but shortsighted merchandising. Our production is in high gear—our factories, our farms, our mines, are pouring out an abundance of products. To get these products into the hands of the greatest number of consumers is our problem. Mass production must have mass consumption. The whole rigged system of fair trade . . . binds us and gags us."

A series of workshops on various problems was held on Wednesday morning. The subjects and group leaders were as follows: "Small College Problems Clinic", Carl C. Storey, business manager, Queens College (North Carolina); "Laboratory Supplies and Equipment", Frank Powell, Alabama Polytechnic Institute; "Vending Machines," C. P. Dunbar and R. W. Flatt, University of Louisville; "Contracting for Service", J. Fred Knight, University of Illinois, Chicago Colleges and Divisions; "Making the Purchasing Department Manual," Thomas A. Dodds, University of Wyoming; "Central Duplicating," Leonard J. Rogge, College of St. Thomas; "Receiving and Inspection," George Toberman, St. Louis University; "Surplus Property," George W. Warren, University of Maryland.

John F. Rhilinger of Dartmouth College gave his views on "Inventories Purchase and Control."

The convention closed with a

banquet on Wednesday evening. Dr. Kevin C. McCann, special assistant to the President of the United States, and president of Defiance College, spoke on "Eisenhower, the Country, and the World."

John Schwegmann, Jr. delivered a strong attack on Fair Trade.

New officers of NAEB for 1955-56 are: president, D. R. Kimrey, University of Oklahoma; vice-president, Melvin T. Tracht, Illinois Institute of Technology; vice-president, Jack S. Reaves, University of Florida; vice-president, George Warren, University of Maryland; treasurer, John A. Pond, University of Colorado; executive secretary, Bert C. Ahrens.

The 1956 convention will be held in New Orleans.

* * *

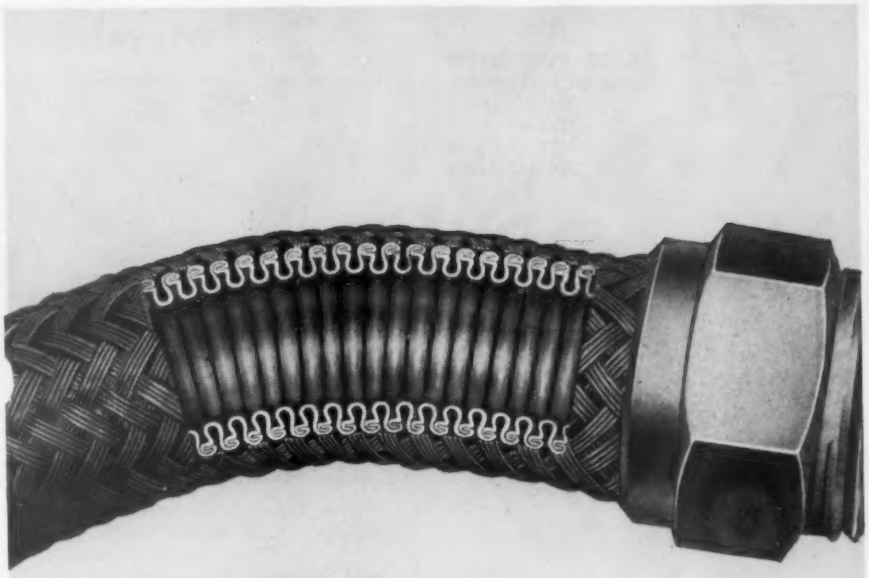
Elmira Ass'n Elects New Officers for '55-'56

At a recent dinner meeting, Richard E. Campbell was elected to succeed Alfred G. Randall as president of the Purchasing Agents Association of Elmira. Other officers include: Delos R. Northrup, first vice president; Horace E. Putnam, second vice president; Iver Johnson, secretary; and Alfred Randall, national director.

* * *

Indianapolis Association

Dr. M. O. Ross, president of Butler University, was recently given a letter by John M. Berry, president of the Purchasing Agents Association of Indianapolis. It authorized the University to offer two scholarships this fall in the field of general marketing which will be sponsored by the Association. The four year scholarship, worth $500 annually, will be limited to Marion County, Indiana students.



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For More Information Circle No. 214 on Inquiry Card—Page 17

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For More Information Circle No. 215 on Inquiry Card—Page 17

Dayton Ass'n Holds Members Products Show

At the Members Products Show of the Purchasing Agents Association of Dayton are, left to right; E. K. Griest, Dayton Association Public Relations; L. A. Jones, past president of N. A. P. A.; Stuart Heinritz, editor of PURCHASING and speaker of the evening; and H. Nemecek, second vice president of the Dayton Association.

A capacity audience of more than 250 members and guests filled the Ballroom of the Biltmore Hotel for the April 12th meeting of the Dayton Purchasing Agents Association. Representatives of the Associations at Columbus, Cincinnati, Lima, Springfield, and Richmond, Indiana, were introduced at the meeting. The occasion was the annual "Members' Products Show". Fifty attractive and informative exhibits of Dayton's diversified industries were arranged along the walls of the meeting room and in the adjoining small ballroom, attracting a constant stream of interested observers during the afternoon preceding the meeting and for an additional hour in the evening.

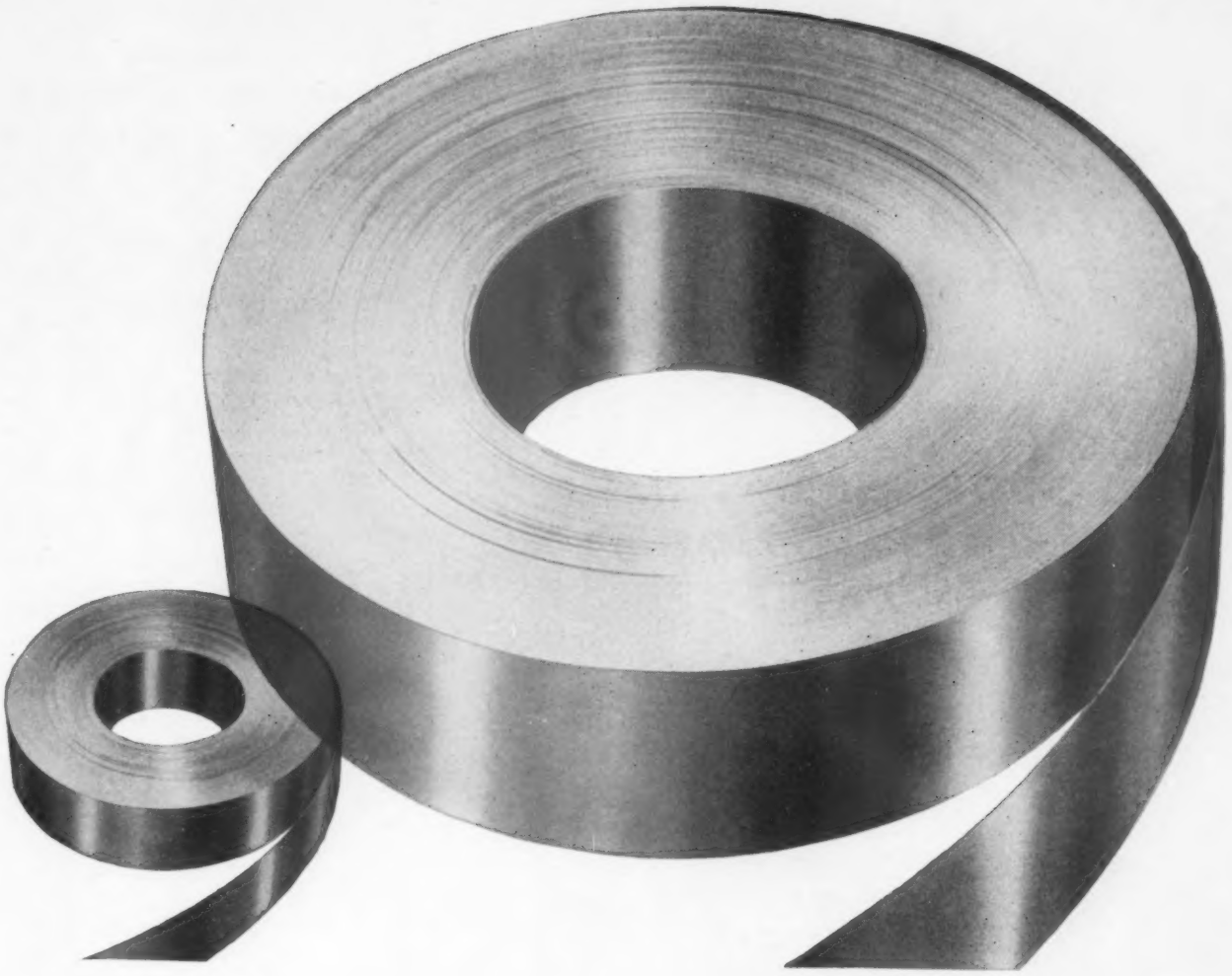
An interesting and unique feature was the attendance of the entire purchasing class from Sinclair College, which is sponsored by the Association and instructed by President Ted Thompson. The exhibit and the meeting program had been set as a class assignment in the course.

Clarence L. Johnson of Globe Industries, Inc., was chairman of the highly successful show, which has grown to the point where larger quarters will be required in another year.

Speaker of the evening was Stuart F. Heinritz, Editor of PURCHASING Magazine. His topic was, "The Changing Business of Buying."

Milwaukee—Rock River Joint Meet

Members of the Milwaukee and Rock River Valley Associations met at the Wagon Wheel, Rockford, Ill., for dinner following a joint plant visitation day, April 19th. Plants inspected were Fairbanks Morse & Co. at Beloit, Wis., and Woodward Governor Co., Barber Colman Co., and Twin Disc Clutch Co., Rockford, Ill. Shown here at the head table are (left to right): Jack Walters of Westinghouse Electric Corp., Chicago; W. T. Whitcomb of Eclipse Fuel Engineering Co., Rockford, Vice President of the Rock River Valley Assn.; H. J. Jungbluth of the Oilgear Co., President of the Milwaukee Assn.; G. C. Minehart of Twin Disc Clutch Co., President of the Rock River Valley Assn.; F. G. Syburg of Chain Belt Co., Milwaukee, District Vice President, N.A.P.A.; and O. C. Sanders of Parker Pen Co., Janesville, Wis., National Director of the Rock River Valley Assn.



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For More Information Circle No. 218 on Inquiry Card—Page 17

Purchasing Film Stirs Lively Discussion at North Jersey P. A. Meeting

A showing of the film "Industrial Purchasing" followed by general discussion from the floor featured the May 11 meeting of the Purchasing Agents of North Jersey. The meeting was held in the Robert Treat Hotel, Newark.

Under an unusual arrangement, the program, consisting of material ordinarily presented in the afternoon forum, was presented at the after-dinner session following a short business meeting.

Paul V. Farrell, managing editor of PURCHASING, introduced the film and the four purchasing agents who comprised a panel for discussion and answering questions following its showing. Panelists included Phil King of Metals Disintegrating Company, Sidney Fitch of Alfred Allan Watts Company, Mike Franza of J. O. Ross Engineering Corporation, and Charles Smith of Royal Master, Inc.

The film provoked vigorous questioning from the floor, and lively discussion by both the panel and attending members. The exchange was still setting a good pace when the meeting had to be called because of the late hour. Small groups of members continued discussion long after the meeting had closed.

Frank Curran, chairman of the forum committee, was in charge of the program.

Principal speaker at the April 13 meeting was Roger E. Gay, president of Bristol Brass Company, and past president of the American Standards Association. His topic was "Standardization in Industry." "Value Analysis" was the afternoon forum topic, with discussion led by Dick Hartsig, Westinghouse Corporation.

Northern California Ass'n

Members of the Purchasing Agents Association of Northern California recently elected C. T. Hofmeister, manager of purchases and stores, Standard Oil Co. of California, to serve as president during the coming year. Other newly elected officers are: Lewis G. Baker, University of California, first vice president; O. B. Sundberg, Hewlett-Packard Co., second vice president; C. A. Dalen, Castle & Cook Ltd., secretary; and F. E. Baxter, Pacific Gas & Electric Co., treasurer.

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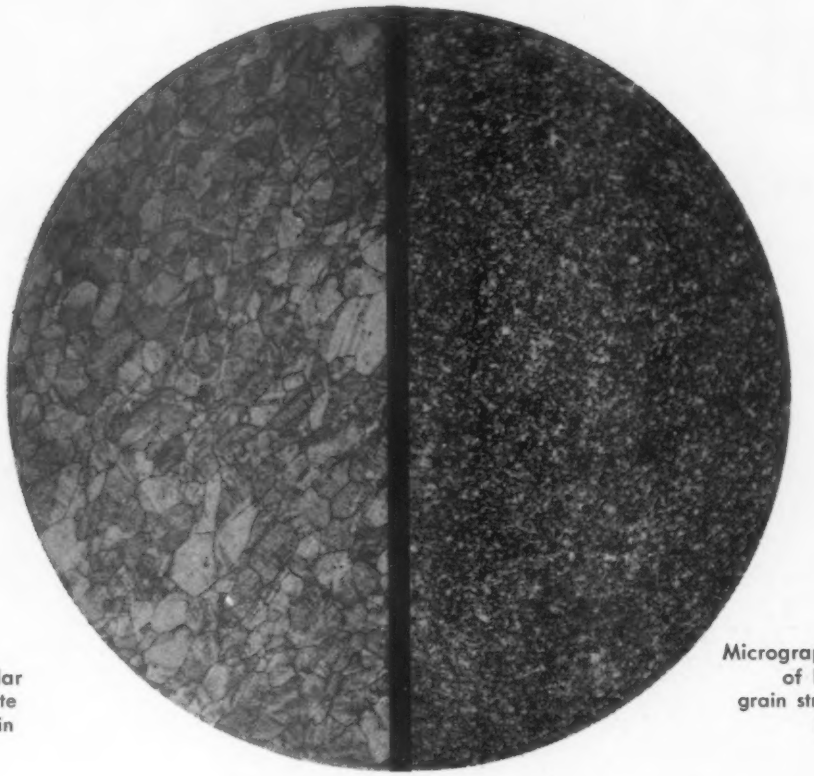

Micrograph (75x magnification) of regular phosphor bronze. Note relatively coarse grain structure.

Micrograph (75x magnification) of Duraflex. Its fine grain structure is the secret of its superiority.

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For More Information Circle No. 219 on Inquiry Card—Page 17

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For More Information Circle No. 220 on Inquiry Card—Page 17

Bruggemann Award Presented at Milwaukee Ass'n Meeting

At a recent meeting of the Milwaukee Association of Purchasing Agents, W. Howell Pritchard, director of purchase of Kearney & Trecker, received the Henry L. Bruggemann award. This award is presented annually to the person who contributed most to the advancement of purchasing in N. A. P. A. District 3 which includes chapters in Duluth-Superior, Minneapolis-St. Paul, Denver, Kansas City, Rockford, Chicago, Milwaukee, St. Louis, and Central Iowa.

W. Howell Pritchard, left, receives Bruggemann Award from Bob Krueger, president of the Chicago Association.

The award, which was founded by the Purchasing Agents Association of Chicago, is given "to commemorate the memory of one whose diligence, faithful yet obtrusive service contributed much to the advancement of purchasing and the propagation of the National Association of Purchasing Agents; to honor similar service in a manner befitting the accomplishment, and to express the gratitude, appreciation, and respect of purchasing agents for leadership which enhances their standing and the standing of purchasing in the business world."

Mr. Pritchard was cited for the award for his outstanding efforts in the field of education, gained principally through his position as chairman of the Third District's educational committee, a post he held from 1951 to 1954. He is former president and national direct of the Milwaukee Association and has served on a number of the Association's committees.

At this meeting, guest speaker was K. W. Haagensen, director of public relations, Allis-Chalmers Manufacturing Co. was "The Human Side of Our Business."

(*Please turn to page* 192)

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For More Information Circle No. 221 on Inquiry Card—Page 17

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Here's your caster-selection problem reduced to a simple answer.

1. One type caster.....
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All of your *medium duty* and *general purpose* trucks can now be equipped from standardized stock of *one type* caster. It's the direct way to increase materials handling efficiency, by simplifying caster service, avoiding break-down delays, saving maintenance work. All types of wheels are interchangeable in corresponding size Caster horns—to suit any floor condition prevailing.

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LONG-LASTING, PRECISION-MADE DRAWN STEEL WHEEL

These deep drawn wheels are made to tolerances typical of fine tools and, like any quality equipment, are the best investment for trouble-free service. The ball bearing hub, as illustrated, is standard. The heavy gauge corrugated sides and double tread support static loads up to 4 tons per wheel. Round edges of tread are easy on floors, won't chip or break. Wheel is absolutely concentric for smooth operation. Exclusive Faultless design and production. Ask for illustrated literature.

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For More Information Circle No. 222 on Inquiry Card—Page 17

(*Continued from page* 190)

Interspersed with humor, Mr. Haagensen reminded members that errors and shortcomings were a constant part of humanity. Tolerance in dealing with these problems and understanding the other fellow's point of view return big dividends in satisfactory relations — whether they be employer—employee, salesman-purchasing agent, or any other.

One of the common failings, said Mr. Haagensen, is to cast derogatory remarks about an individual or firm to absolute strangers without realizing that the stranger may be a relative, business associate, stockholder or some one else intimately connected with the subject of the gripe. This inspirational address was accorded one of the longest rounds of applause given to any speaker at the Association in long time.

Also, at the same meeting, members were privileged to hear a predinner talk by R. A. Perkins, controller and assistant secretary-treaurer of Kearney & Trecker Corp. Mr. Perkins discussed the pros and cons of buying or leasing machine tools.

H. E. Cooley Elected President of Pittsburgh Ass'n

Members of the Purchasing Agents Association of Pittsburgh recently elected their 1955-56 officers. They will be served during the coming year by: H. E. Cooley, National Supply Co., president; D. A. Riggs, Westinghouse Electric Corp., vice president; Wayne Rawley Jr., Blaw Knox Co., secretary; and F. R. King, Colonial Supply Co., treasurer.

Elected directors for a two year term were: S. D. Clarke Jr., Rust Engineering Co.; J. G. McNeely, C. G. Hussey & Co.; A. B. Wadsworth, Allegheny-Ludlum Steel Co.; C. N. Wayman, H. H. Robertson Co.; and H. L. Weatherby, Penn General Supply Co.

The May 17 meeting of the Association commenced with tour of Mesta Machine's factory. The evening meeting was a joint one with the Pittsburgh District of the American Society for Testing Materials. Guest speaker was R. J. Painter, executive secretary, American Society for Testing Materials.

Recent additions to the membership roster of the Association include John W. Lindsey, director of purchases, Jones & Laughlin Steel Corp. and Harry Dunmire of the National Roll & Foundry Co.

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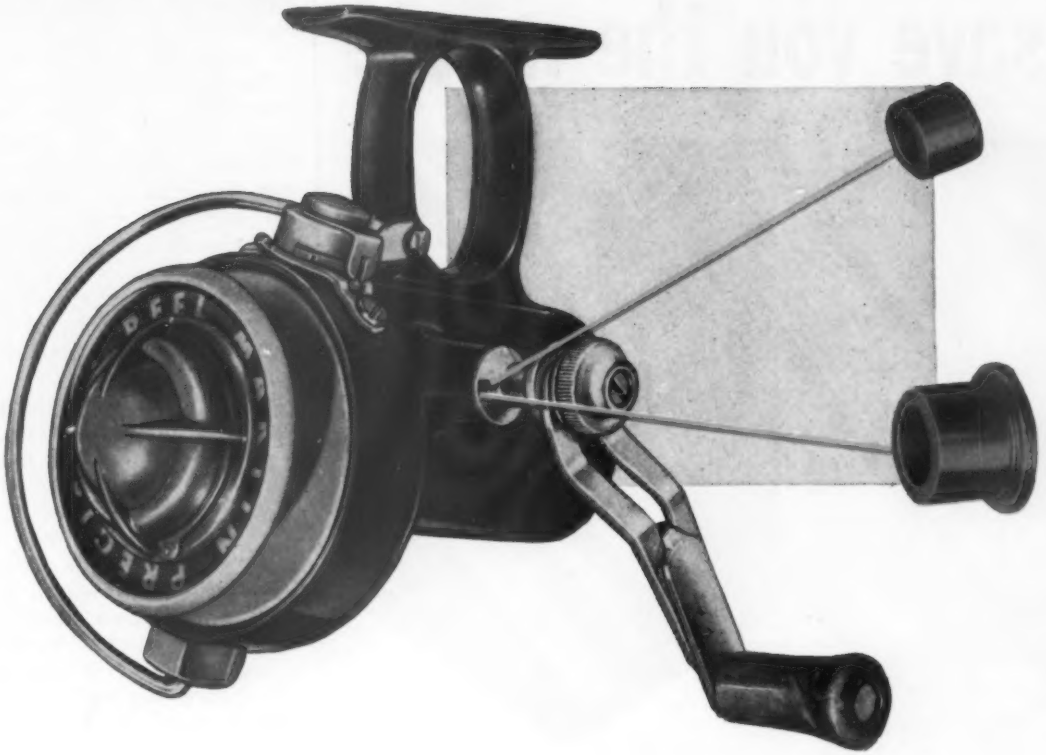

one-half million spins under tension and— OILITE bearings show no appreciable wear

Here's a fishing reel that is subjected to laboratory tests far more drastic than it receives from anglers —*and the self-lubricating OILITE bearings take it in stride.* Here's what the spinning reel manufacturer reports:

"Last summer we had one stock reel tested under tension (up to and including four pounds) at varying speeds. This reel had your bearings, of course.

"Our original intention was to give the reel a breakdown test. However, after running the reel under tension 186,727 revolutions of the crank handle, actually revolving the head over half a million times, we found that the bearings showed no appreciable wear. *In fact, your bearings appeared only slightly worn in. This is a terrific recommendation, in our opinion, for your bearings.*"

The impregnated oil in self-lubricating OILITE bearings is held in storage by capillary attraction and provides a surface film for positive, constant lubrication. OILITE bearings are particularly successful in trouble areas where it is difficult or impossible to provide lubrication. The built-in oil cushion absorbs heavy shocks and stresses.

Chrysler engineered OILITE bearings are made of various metals and alloys in a wide range of sizes for a multitude of uses. Standard bearings and bearing material (cored, bar and plate stock) are available from local dealers throughout the U.S. and Canada.

Contact Amplex for help with your bearing problems. The engineering facilities of Chrysler-Amplex are available to serve you. OILITE Field Engineers, Supply Depots and Dealers in all principal cities. Overseas distribution thru Chrysler Export.

Chrysler-Amplex also manufactures Permanent Metal Filters, Finished Machine Parts and Friction Units.

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For More Information Circle No. 223 on Inquiry Card—Page 17

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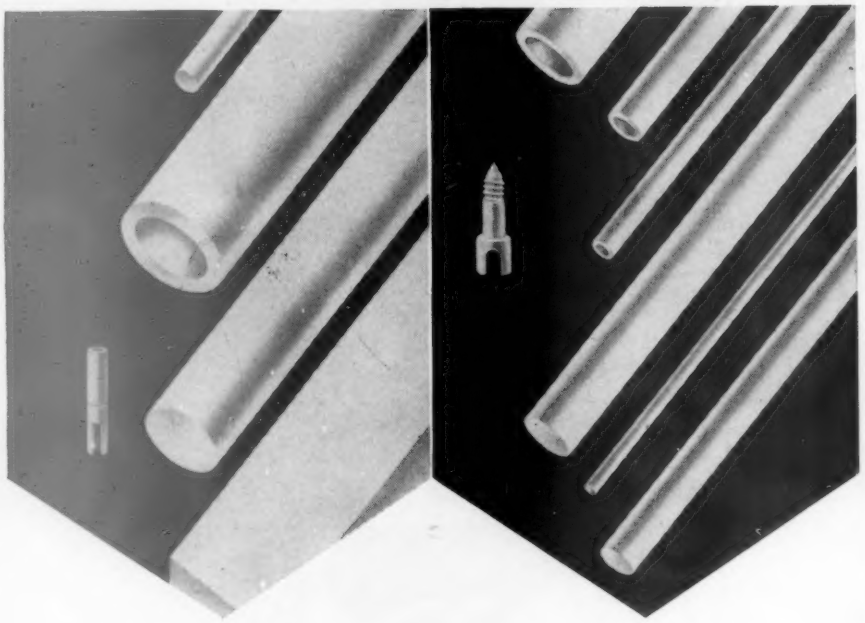

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Stress-relieved, *both* grades machine easier and offer you the stability you want in finished parts and products. *Both* grades benefit from production under our quality control system approved by the USAF.

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For More Information Circle No. 224 on Inquiry Card—Page 17

D. C. PAs See Film "Industrial Purchasing"

The program for a recent meeting of the Purchasing Agents Association of Washington, D. C., had a three-fold purpose. It was designed to stimulate thinking on (1) contributions purchasing can make in the design and manufacture of a product, (2) the importance to company success of close cooperation between purchasing and both its suppliers and other company departments including engineering, manufacturing, and sales, and (3) problems involved in the purchase of capital equipment. To illustrate these three objectives, the film, "Industrial Purchasing," was shown which portrays a modern purchasing department in action.

At its May meeting, members selected their officers for the coming year. Richard Bussard of Washington Gas Light Co. was chosen to serve as president. Other officers include: Earl Johnson, vice president; Miss Helen Schofield, secretary; John Chester Barry Jr., treasurer; Philip F. Whitaker Jr., national director; and D. A. Cook, alternate national director. Directors for the coming year are L. E. McCorquodale, Mrs. A. M. Sebastian, and Mrs. Alice Saunders.

Crime Commission Member Addresses Dallas Ass'n

Featured speaker at the May meeting of the Purchasing Agents Association of Dallas was Dan Reynolds of the Dallas Crime Commission. He discussed "Phases of Crime Prevention and Juvenile Delinquency." Members were left in a thoughtful mood after Mr. Reynold's discussion of this nationwide problem.

The Association has chosen its new officers and directors for 1955-56. Recently elected were: George C. Eason, president; L. W. Althauser, vice president; Robert C. Kelley, vice president; Fred Bradley, secretary-treasurer; Maynard E. Robertson, national director; and John R. Guynes, alternate national director. Serving as local directors are Howell Adair, John Morris, and Mack Wade Jr.

On June 24, Dallas and Fort Worth PAs joined together for their annual trip to the Briggs-Weaver Machinery Co. lodge on the shore of Grapevine Lake. Preliminary reports indicate that the event was, as always, one of the most successful and enjoyable of the year

For More Information Circle No. 225 on Inquiry Card—Page 17→

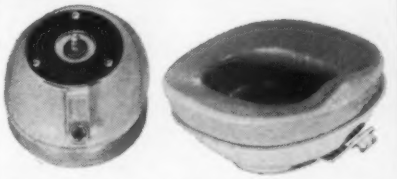
RACKET is hushed—but speech is HEARD with this NEW M·S·A EAR PROTECTION

Here is the modern answer to the problem of industrial noise which can often set the stage for accidents, work slow-downs, and loss of hearing.

Developed as the result of years of intensive research, the M.S.A. Earsaver provides that all-essential seal with the wearer's face that assures effective over-the-ear noise protection. This device comes in two styles:

1. The M.S.A. Earsaver, an open-weave cotton gabardine headgear cap assembly for persons exposed continuously to a relatively high level of noise.
2. M.S.A. Noisefoe, a head-set suspension type, for persons who must enter noisy areas for brief intervals then return to normal noise levels. This device is quick and easy to put on, take off.

Both models are light and comfortable, well balanced to eliminate work fatigue. Write today for complete construction details on this important M.S.A. development.



Ear cavity for cushion was designed from U. S. Air Force Aero Medical Laboratory statistics to provide comfortable fit for all ears. Cushion has wide sealing area for maximum attenuation. Cushion is of soft, flexible sponge material that resists oil, adapts to all facial contours. Easy to keep clean. Molded fiber-glass plastic outer cup protects cushion, holds it in place.

ALSO . . . M·S·A EAR DEFENDERS

Lightweight, tapered tubes, molded from special, soft, non-toxic elastomeric material. These devices give a perfect closure of the ear canal, yet are easily fitted and comfortable. Three sizes available to assure perfect fit. Plastic carrying kit fits in pocket, keeps Ear Defenders clean, and always ready for use. Write for details.

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"WE CUT MOTOR REPAIRS FOR ONE OF OUR CUSTOMERS FROM 18 MOTORS PER YEAR TO 2 BY INSTALLING FUSETRON FUSES"

"The owner of a large poultry farm is one of our customers. In his operation a great number of motors are used in many different ways — pumps, feed grinders, heating systems, ventilators, etc.

"But these motors were giving him so much trouble that we were rewinding from 12 to 24 burned out motors a year for him.

"To correct the trouble, we suggested protecting the motors with Fusetron dual-element fuses. He told us to go ahead and try them. So, after checking the circuits and motors, Fusetron fuses were installed in proper sizes.

"Fusetron dual-element fuses proved themselves from the beginning. For the entire year following their application, only 2 motors were repaired and this trouble was caused by over lubrication.

"The motors we rewind are guaranteed for a year so we want to be sure they are properly protected. That's why we recommend to all our customers that they use Fusetron dual-element fuses."

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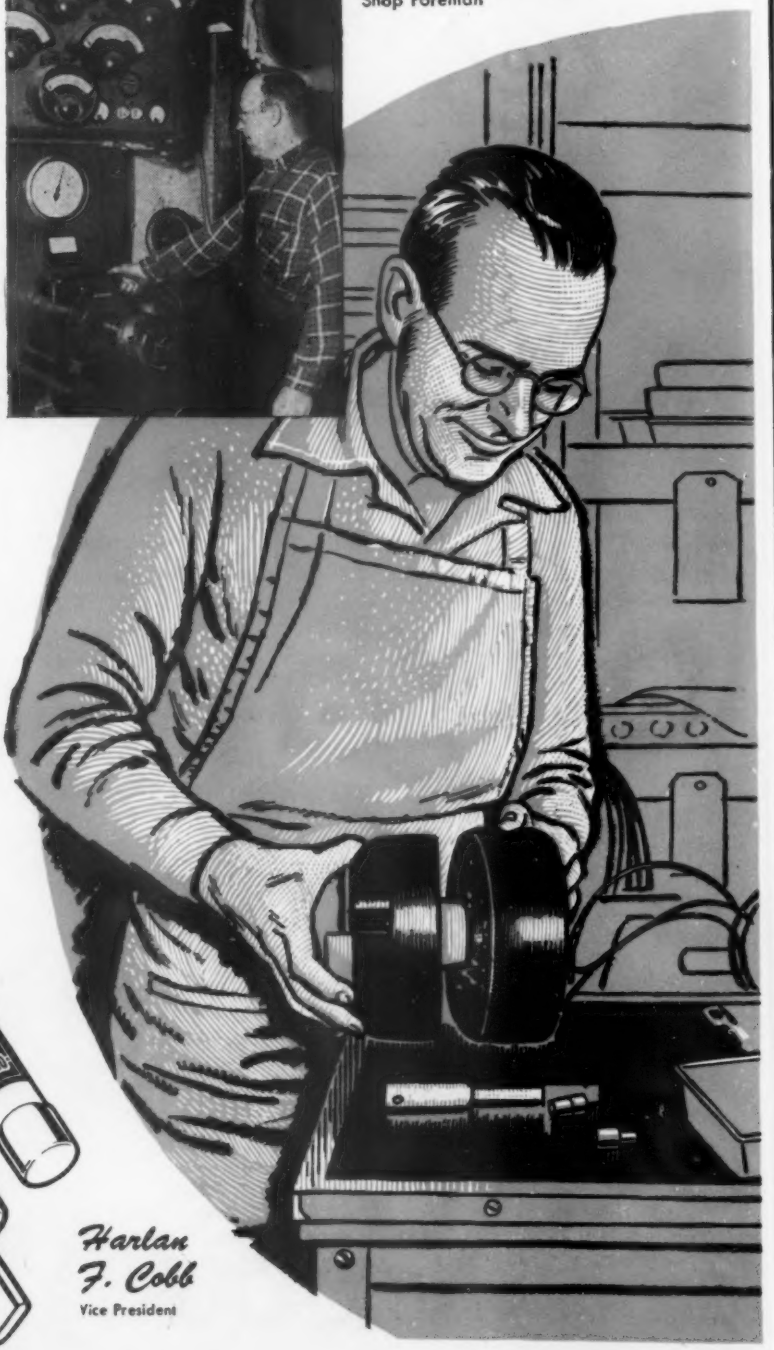
ROBERT E. HENRIKSON
Shop Foreman



FUSETRON is a trademark of Bussmann Mfg. Co.

Harlan F. Cobb
Vice President

FUSETRON dual-element FUSES do more than cut your motor repair costs

Fusetron fuses save you recalibration and maintenance costs

Fusetron fuses are *calibrated at the factory by engineers.* Once properly installed, they require no periodic inspection or down-time necessary on mechanically operated devices.

Fusetron fuses eliminate down-periods caused by needless blows

Fusetron fuses can increase production and reduce annoying interruptions of regular maintenance because — they wipe out needless blows caused by harmless overloads or excessive heating.

Fusetron fuses increase life of equipment

If there is an electrical fault, Fusetron fuses open and warn of danger and help hold fault to its source.

Panels and switches are protected against damage due to poor contact heating.

100,000 amp., interrupting rating gives you maximum safety

Fusetron fuses can safely interrupt the most severe available short circuit current — and are adequately safe to meet future circuit growth.

Fusetron fuses save on installation costs

They protect against waste of space and money by permitting use of proper size panels and switches, instead of oversize.

Lawson E. Cobb
President

Here's why Fusetron fuses give all-purpose protection

A fuse link combined with a thermal cutout — the result, a fuse with tremendous time-lag and much less electrical resistance and an interrupting rating in excess of 100,000 amps.

They have the same degree of Underwriters' Laboratories approval for both motor-running and circuit protection as the most expensive devices made.

Made to same dimensions as ordinary fuses. FUSETRON Fuses fit all standard fuse holders.

Obtainable in all sizes from 1/10 to 600 ampere, both 250 and 600 volt types. Also in plug types for 125 volt circuits.

Their cost is surprisingly low.

Write for bulletin FIS.

For loads above 600 and up to 5,000 amps., Use BUSS Hi-Cap Fuses . . .

They have unlimited interrupting capacity to handle any fault current regardless of system growth.

They can be coordinated with Fusetron fuses on feeder and branch circuits to limit fault outages to circuit of origin.

Write for bulletin HCS.

BUSSMANN MFG. CO. Div. of McGraw Electric Co.
University at Jefferson, St. Louis 7, Mo.

Play Safe! **install FUSETRON dual-element Fuses and BUSS Hi-Cap Fuses throughout entire Electrical System!**

FUSETRON
TRUSTWORTHY NAMES IN ELECTRICAL PROTECTION
BUSS

755

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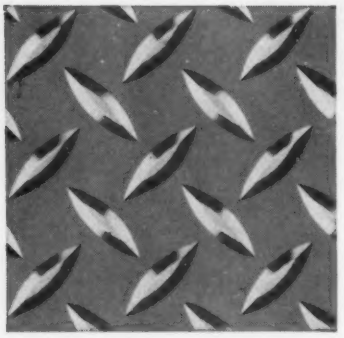


One-half actual size

How many points in a SUPER-DIAMOND?

40

You'll find 40 non-slip traction points, angle-engineered to safety, in every footstep of A.W. SUPER-DIAMOND, the lifetime-lasting rolled-steel floor plate.

Count the other points which make for combined economy and safety in this master flooring for entire floors or small areas—low cost, overnight installation, durability, easy cleaning, fast draining, resistance to fire, heat and most chemicals—and you'll find that every foot in your plant is safer when you install the exclusive-patterned

A.W. SUPER-DIAMOND
ROLLED STEEL FLOOR PLATE

"The diamond in the rough . . . a gem of a flooring."

ALAN WOOD STEEL COMPANY SD-35
Conshohocken, Pa.

Please send A.W. SUPER-DIAMOND Booklet

Name_____

Title_____

Company_____

Address_____

City_____ Zone_____ State_____

Other products: A.W. ALGRIP Abrasive Rolled Steel Floor Plate—Plates—Sheets—Strip—(Alloy and Special Grades)

For plants where oil, water and grease raise special problems of slipping accidents, we suggest a check on the special qualities of A.W. ALGRIP . . . the world's only abrasive rolled steel flooring.

For More Information Circle No. 227 on Inquiry Card—Page 17

495 Attend Highly Successful Buffalo Salesmen's Night

In place of its regularly monthly meeting, the Purchasing Agents Association of Buffalo held its Annual Purchasing Agents—Salesmen Night. It was held at Kleinhan's Music Hall. Featured were a cocktail party, roast beef dinner and the complete floor show from the Chez Ami. Plaudits go to Fred Quirin and his committee for a wonderful job of planning and engineering the party.

Because of the Salesmen's party, a special meeting was held a few weeks later. Featured was a showing of the film, "It's Your Decision." It portrays the problems encountered by three ex-G. I.'s starting into business for themselves.

The May meeting of the Association was "Educational Night." Featured speaker was Roger Gay, president of the Bristol Brass Corp. Mr. Gay's topic was "The Armed Forces, Standards, and You." He was well qualified for his subject since he is a past president of the American Standards Association and is currently starting a new assignment in Washington which carries the title of Director, Cataloging, Standardization, Inspection, and Quality Control, Office of the Assistant Secretary of Defense, Supply and Logistics.

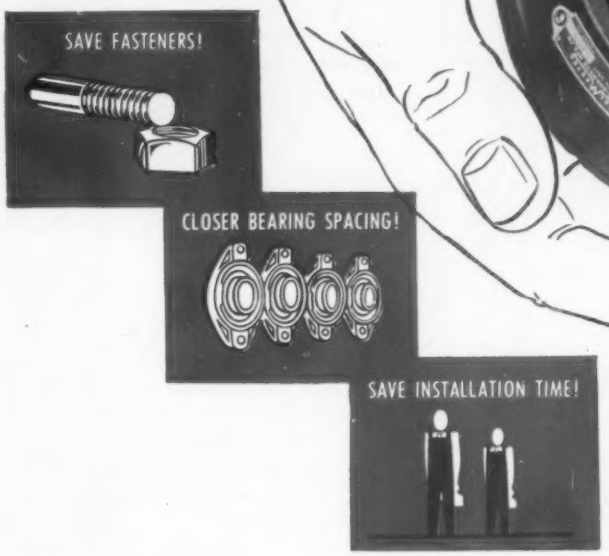
As an added feature, there was a plant visitation to the Dunlop Tire & Rubber Co. prior to the meeting. Later, members enjoyed special entertainment furnished by the "Twin City Choristers."

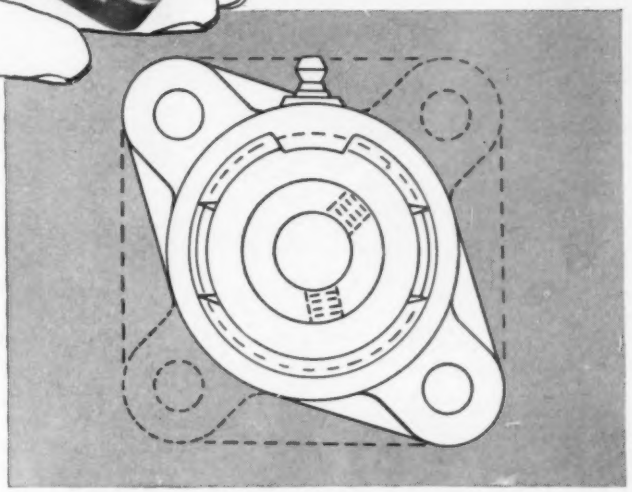
Syracuse Ass'n Honors Past Presidents

At their May 25 meeting, members of the Purchasing Agents Association of Syracuse and Central New York honored their past presidents. Principal speaker at the dinner meeting was Edward T. Dickinson, Commissioner of Commerce of the State of New York. Mr. Dickinson was formerly assistant to the president of Carrier Corporation and has had considerable experience in both industry and government in economic and financial affairs. His topic was "Economic Conditions in New York State."

At its previous meeting, the Association had as guest speaker, James Sheridan, treasurer of Allied Chemical & Die Corporation. Members learned a great deal about the financial aspects of a business from Mr. Sheridan's talk.

NOW! SEALMASTER cuts corners to save DOLLARS for you!





Check these facts!

- Cuts installation costs by eliminating two fasteners and punching or drilling operation required for two mounting holes.
- Permits closer bearing spacing on multiple shaft installations.
- As a replacement bearing unit fits the diagonal bolt centers on present four-bolt flange units.
- Carries the same load rating for a given shaft size as four bolt units.
- Retains all patented design features of SEALMASTER Bearing Units—Zone Hardening, Self-Alignment, Locking Pin & Perimeter Dimple and Labyrinth Seal.
- Available in shaft sizes from ½ to 2 3/16 inches.

New SEALMASTER 2-BOLT FLANGE UNIT

Call your SEALMASTER Distributor or mail this coupon today!

Please send Bulletin SS-125 containing full information on the new SEALMASTER 2-Bolt Flange Ball Bearing Unit.

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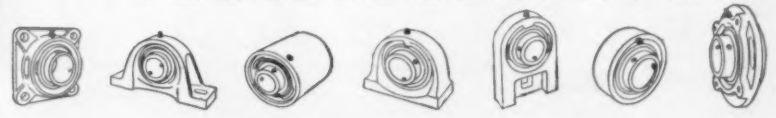
SEALMASTER BALL BEARING UNITS



SEALMASTER BEARINGS A DIVISION OF STEPHENS-ADAMSON MFG. CO. • 51 RIDGEWAY AVE., AURORA, ILLINOIS

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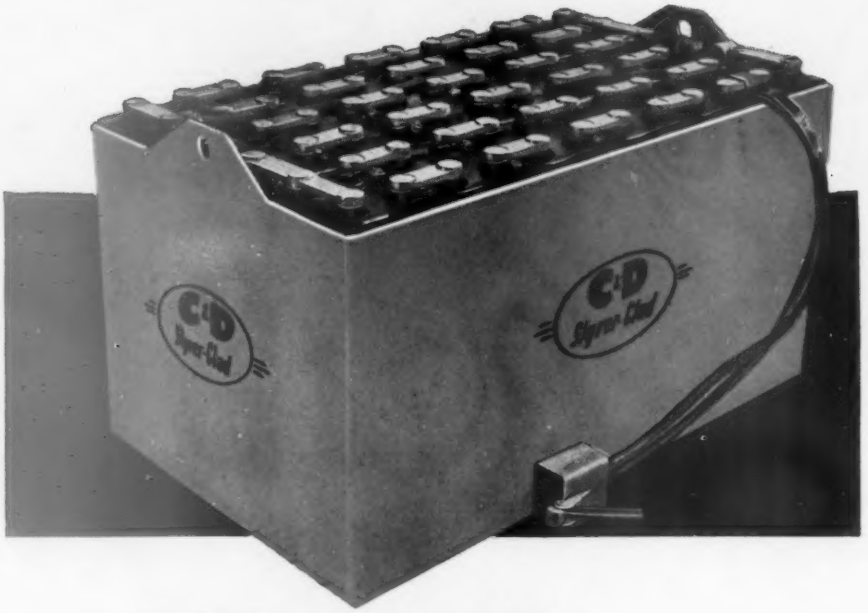
more power than ever

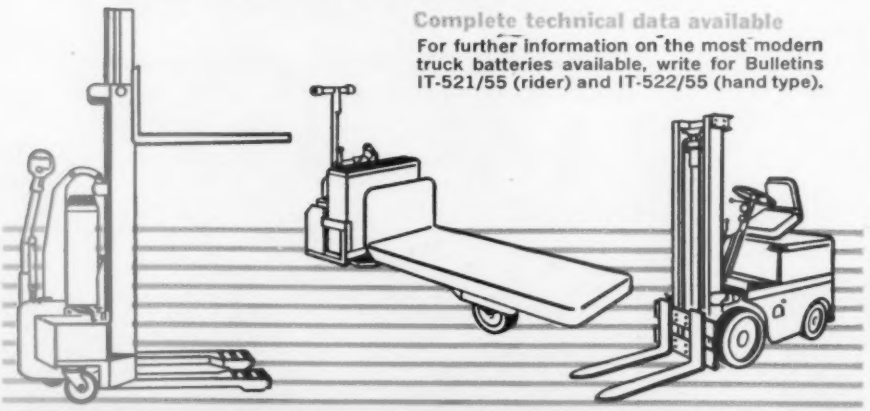


with C&D's new 66 and 125
Industrial truck batteries

Ten years ago C&D pioneered two high capacity batteries—and the users of these batteries today represent a bluebook of American industry.

Now, after continuing research, development and testing, the newest additions to C & D's line of industrial truck batteries, the 66 and 125 are available. Now you can get at least 10% more capacity in standard size trays for your truck. *In truck operation, this means at least a 10% longer duty cycle.* Now, you can put the most modern maximum capacity industrial truck battery on the market today—C & D's Five-Fold Slyver-Clad* to work in your trucks. Remember—C & D Slyver-Clad Batteries move more tons—for longer periods! *T.M. Reg.

Complete technical data available
For further information on the most modern truck batteries available, write for Bulletins IT-521/55 (rider) and IT-522/55 (hand type).



C&D BATTERIES, INC.
of Conshohocken, Pa.
Industrial Batteries Since 1906
Sales and Service Offices in Principal Cities from Coast to Coast

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Twin City Ass'n Has Dinner Party and Factory Tour

On June 10, members of the Twin City Association of Purchasing Agents toured the factory of William Brothers Boiler & Manufacturing Co. Following this interesting visit, they met their wives for a dinner party at the Town & Country Club in St. Paul.

The May meeting of the Association was "Executive Night;" it was held in the Radisson Hotel Gold Room. Prior to the dinner meeting, there was a tour of the facilities of Metallurgical, Inc., in Minneapolis. PAs saw the world's largest vertical drop bottom metal treating furnace at the plant which is considered one of the most modern in the nation.

Guest speaker at the dinner meeting was David M. Lilly, president of Toro Manufacturing Co. His topic was "Minnesota and You." Mr. Lilly was extremely well qualified for his subject. He has devoted a great deal of time to promoting Minnesota industry and has served under two governors as Chairman, Advisory Commission, Department of Business Development of Minnesota.

Bob Isenhart Is President-Elect of Dayton Association

The May 24 meeting of the Purchasing Agents Association of Dayton was election night. The following officers will serve during the year 1955-56: Robert F. Isenhart, Dayton Power & Light Co., president; Harold E. Nemecek, Lau Blower Co., first vice president; Floyd O. Pansing Jr., Hobart Manufacturing Co., second vice president; Dean Heaton, Huffman Manufacturing Co., secretary; Ralph Caywood, Horstman Printing Co., treasurer; Ted R. Thompson, Allison Division of General Motors, national director; and Joe Geyer, Sheffield Corp., local director.

On June 9, the Dayton Association held its annual Golf-Picnic-Dinner at Walnut Grove Country Club. Phillip Hull and Carl Woessner served as chairmen of the gala event.

On May 12, the Association celebrated a special event, a Past Presidents' Night and members only meeting at Longo's Recreation Hall. Frank Irelan, general manager of G. M.'s Delco Products Division spoke in his own expressive manner on "Life in A Free America."

His remarks were highlighted by a color film, "Report on a Prophecy." This film graphically portrayed the results of the five year period of industrial peace resulting the General Motors-UAW agreement in 1950.

Robert F. Isenhart

At the meeting, 18 of the Association's living past presidents were honored. Heading the list was H. D. Hussey, formerly of National Cash Register, and the oldest living past president. Mr. Hussey was president of the Association in 1919.

Metropolitan Purchasers Meet

Topic at the May meeting of the Metropolitan Purchasers Assistants Club was "Product Information in Procurement of Industrial Supplies and Equipment." Speaker was Al Scharf, chairman of the Club's Lecture Committee and PA of Eastern Sanitary Products & Paper Corp. As an added feature, the film "Future Forests of America," was shown.

At the previous meeting, guest speaker was George P. Paine, assistant secretary of the American Standards Association and a U. S. member of the International Organization for Standardization. Mr. Paine's topic was "Better Standards of Purchasing—and How to Get Them."

New members of the club include: Arnold A. Anderson, Dragon Cement Co.; David P. Barry, Kentile Inc.; Gerald Lakow, Samuel Lakow & Sons; John William Fernino, Chas. F. Guijon Inc.; and William T. Smith, M. W. Kellogg Co.

At its June meeting, the Club elected officers for 1955-56. They are: Harold T. Hill, president; George L. Stapleton, vice president; William M. Nagle, secretary; and Paul M. Tintera, treasurer. A full report on this important June meeting with pictures will appear in the August issue of PURCHASING.

more power **now!**
get at least **10%** more power
with C&D's new **66** and **125**
Industrial truck batteries

The proven retention qualities of C&D's famous Five-Fold Slyver-Clad* construction virtually eliminates shedding and needed sediment space is held to a minimum. In the new 66 (HA) and 125 (HB) batteries, C&D utilizes the extra space thus obtained in a standard jar by using the longest, thickest plates in the industry to give: *T.M. Reg.

Extra life! Maximum capacity!

Plus—

Post corrosion and leakage eliminated by lead bushing in cover.

Easier maintenance provided by new level indicator to prevent overflushing.

Separator breakage prevented by plastic moss shield.

Extra strong plates cast by special process which eliminates flaws, shrinkage, cracks, and dross inclusions.

New jar cover—molded of special hi-impact compound designed to resist breaks and leaks.

This is Slyver-Clad construction.

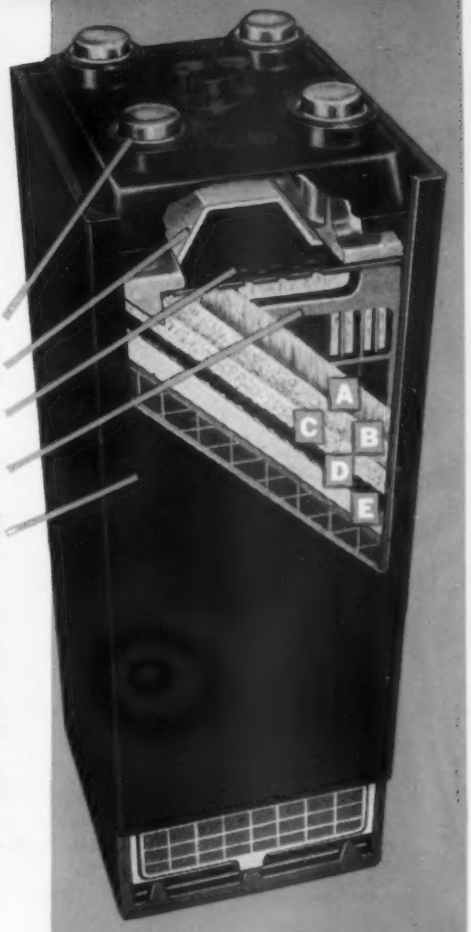
A Slyver; parallel glass fibres to hold active material in place.

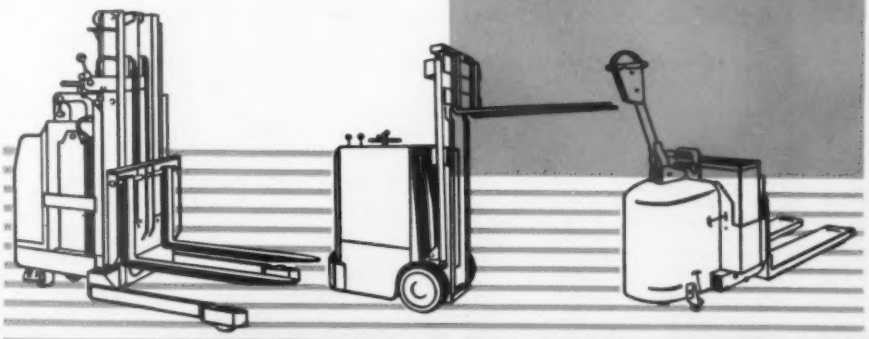
B First glass expansion mat—allows normal plate expansion; holds Slyver in place.

C Second glass expansion mat—allows additional normal plate expansion; covers vertical plate edges.

D Perforated Koroseal retainer—completely encases plate, and insulates sides and bottom.

E Microporous rubber or plastic separators—last a lifetime.





C&D BATTERIES
work stronger—longer!

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Custom Engineered
MOLDED RUBBER PARTS
ACUSHNET specializes in "precision" molded rubber parts custom-engineered to specific requirements.
Utilizing the most modern techniques, our Engineering Staff constantly is developing new approaches to old problems, with notably successful results. By ingenious mold designing and skillful compounding, yesterday's skepticism of rubber for certain uses has changed to complete confidence in this versatile material as ideal for applications in countless vital assemblies.
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PROCESS COMPANY
Consult our engineers on your next precision molded rubber job. In the meantime, send for a copy of the "Acushnet Rubber Handbook", a comprehensive rubber data reference for molded rubber parts.
Address all communications to 770 Belleville Ave., New Bedford, Mass.
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Michigan State College Honors S. W. MacKenzie

As a part of its Centennial observation Michigan State College is conferring special awards on outstanding alumnae in business and commerce. Stanley W. MacKenzie, director of purchases, U. S. Rubber Co., president of the New York Association of N.A.P.A. and an M. S. C. alumnus received a citation reading as follows:

"Stanley W. MacKenzie—Executive and business man. Your successful career in the field of purchasing has been worked by vision and devotion to the high ideals and responsibilities of American Business. As President of the New York Association of Purchasing Agents and as Consultant to the Education Committee of the National Association of Purchasing Agents, you have had great influence in developing and maintaining standards in the field of purchasing. Recognizing the notable contribution of a distinguished Alumnus to the economic and educational welfare of the Nation, Michigan State College is proud to present you with its Centennial Award."

The presentation was made by Professor Wyngarden, Dean of the College of Business and Public Service, at a dinner attended by about 200 prominent alumnae and business men.

Montreal Association Installs 1955-56 Officers

On Tuesday, May 17, members of the Purchasing Agents Association of Montreal gathered at their usual meeting place, the Sheraton-Mount Royal Hotel to select officers for the coming year. They chose: Cecil Code, president; Ed Fitzgerald, first vice president; Jos. C. Bradley, second vice president; John Loucks, secretary; Al Heron, treasurer; and Ernest B. Conley, C. A. P. A. director. The Executive Committee is now composed of Gordon Morris, Lorne Argue, Ernest Labrie, Robert Brodie, and Andre Rolland.

Guest speaker at the meeting was Colonel K. R. Swinton, general manager, Thomas A. Edison of Canada Ltd. His topic was "Co-Existence or Co-Destruction." Col. Swinton was well qualified for his topic being well versed in foreign affairs and current events. He is a former president of the United Nations Association and has been active in numerous other organizations.

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with B&W MECHANICAL TUBING

CARBON • ALLOY • STAINLESS

Countless hollow parts and products now being made from solid stock can be fabricated more economically from tubing. The hole is there, eliminating heavy drilling with all its attendant waste. And the wide range of sizes, shapes, analyses, finishes and heat-treated conditions in which B&W Mechanical Tubing is available, make it a semi-finished product in itself—reduce all your machining operations to the minimum.

Get the facts on savings from Mr. Tubes, your link to B&W and your local B&W tubing distributor.

Write for Guide to the Use of Seamless Mechanical Tubing, Technical Bulletin 340P.

B&W TUBULAR PRODUCTS DIVISION

THE BABCOCK & WILCOX COMPANY
TUBULAR PRODUCTS DIVISION
Beaver Falls, Pa. and Milwaukee, Wis.: Seamless Tubing, Welded Stainless Steel Tubing
Alliance, Ohio: Welded Carbon Steel Tubing
Milwaukee, Wis.: Seamless Welding Fittings TA-5031 (G)

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IMPROVE YOUR PRODUCT
AND CUT COST . . . by letting Shenango handle all your annular, symmetrical or tubular part needs. They're centrifugally cast for pressure-dense grain, greater strength, better elongation and freedom from porosity, sand inclusions and blow holes. Machining is easy too, with less waste. Whether your plans call for tiny bushings or huge rolls, ferrous or non-ferrous, rough or finished, check with Shenango . . . and see how you stand to gain. Write: Shenango-Penn Mold Company, Centrifugal Castings Division, Dover, Ohio (Executive Offices: Pittsburgh, Pa.)
SHENANGO
CENTRIFUGAL CASTINGS
COPPER, TIN, LEAD, ZINC BRONZES • MONEL METAL
ALUMINUM AND MANGANESE BRONZES • NI-RESIST • MEEHANITE METAL
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George McShane Elected Head of Southern Conn. Ass'n

At a recent regular monthly meeting, members of the Southern Connecticut Purchasing Agents Association held their annual election of officers. Also on the program was an afternoon plant visit to the American Cyanamid Co. in Stamford and dinner at the Chimney Corner Inn. After dinner speaker was Mr. Robert T. DeVore of the public relations department of E. I. DuPont de Nemours and Co. His topic was "Progress Must Be Created."

Officers chosen to serve during the 1955-56 year include: George P. McShane, American Felt Co., president; W. R. Ferguson, The Barden Corp., first vice president; Clifton W. Boylan, Sorenson and Co., second vice president; Alfred Green Jr., Burndy Engineering, secretary; and Ed Cunningham, Conde-Nast Publications, treasurer.

Washington Ass'n Installs New Officers at Monthly Meeting

Members of the Purchasing Agents Association of Washington recently gathered at the Olympic Hotel in Seattle for installation of officers for 1955-56 year. The program began with a showing of colored movies of Korean naval action by Kenneth Wilson of Gladding, McBean & Co. Then, the Association presented its $200 scholarship award to the University of Washington business administration student showing an outstanding record in a purchasing course. The award was made by Harry S. Beetham, chairman of the education committee.

The following members were honored with 25 year membership plaque awards and received a resounding round of applause for their long service to the Association: Fred W. Barnum, Seattle Gas Co.; Paul Mason, White Pass & Yukon Route; and H. F. Price, Bethlehem Pacific Coast Steel Corp.

New officers installed included: George H. Wilson, Atlas Foundry & Machine Co., President; Allan W. Fox, Puget Sound Power and Light Co., first vice president; Harold L. Wanser, E. J. Bartells Co., second vice president; M. C. Staley, A. M. Castle & Co., secretary; Harry S. Beetham, Northwest Metal Products Co., treasurer; and Dean Smith, Summer Iron Works, national director.

Paying for AMERICAN PHILLIPS Screws without using them is "pouring money down the drain"!

Many plants paying *less* (on the face of the price tag) for old-fashioned fastening methods . . . are actually paying *more* than they would have to pay for American Phillips Screws. For these modern fasteners not only prevent lost material, lost-time accidents, and rejected product . . . they also speed up assemblies as much as 50%. That's why they *always cost least to use.*

And in addition to these Phillips advantages, there are many special American advantages . . . unlimited supplies of all sizes, types and head styles . . . engineering service with an unmatched record of solving special problems . . . quality guarded by self-checking inspection system . . . full measure assured by precision counting. That's why more and more mass producers of hard goods "buy American" every year . . . because they know their production lines will keep rolling. And *you* can have this same peace of mind.

✕ *marks the spot*
. . . the mark of extra quality

AMERICAN SCREW CO.

PHILLIPS HEADquarters
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Plants at Willimantic, Conn. and at Norristown, Pa.
Warehouse and office at Chicago
Office, Detroit, Michigan

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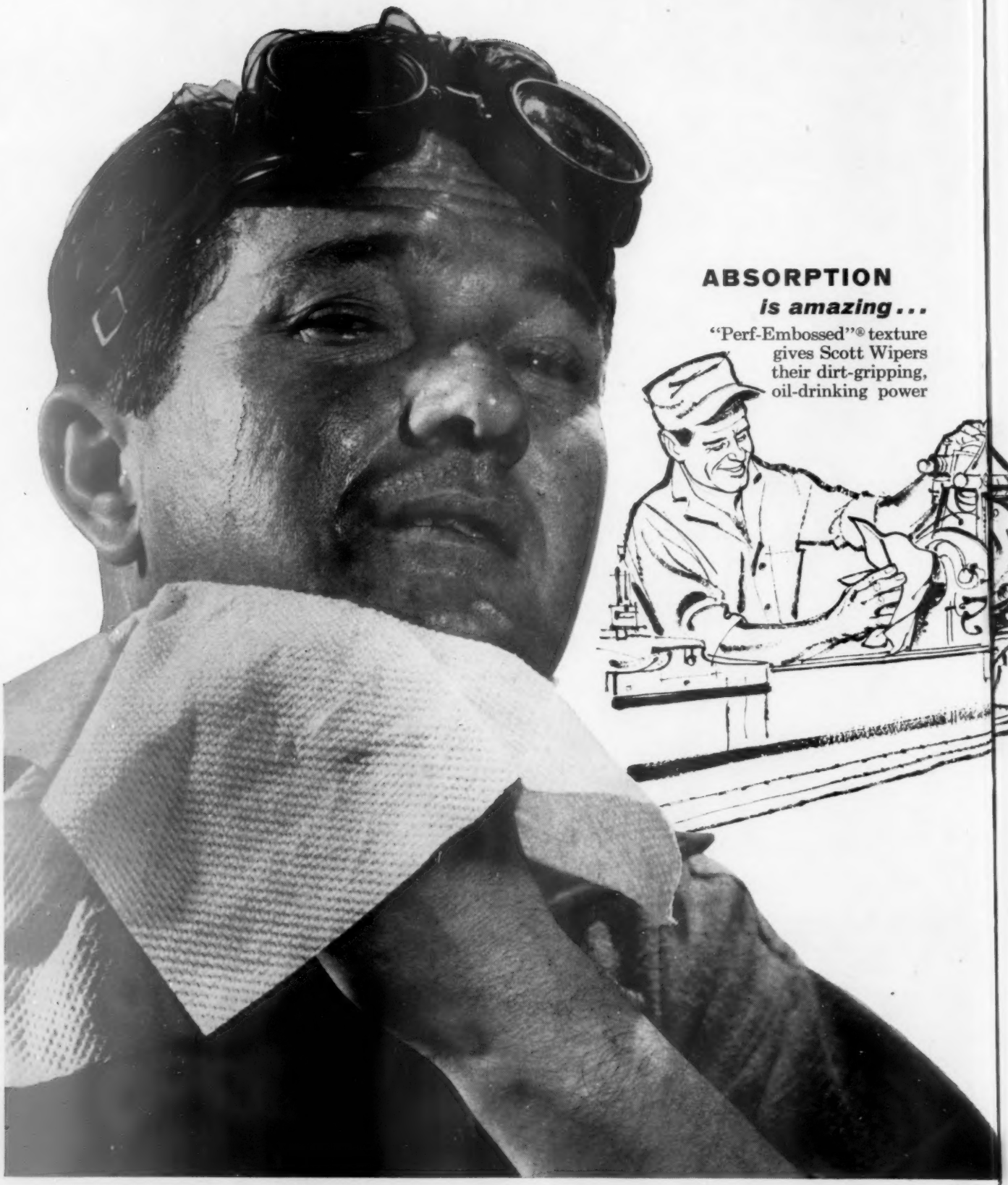
Your wiping problems increase in hot weather..



ABSORPTION
is amazing...
"Perf-Embossed"® texture gives Scott Wipers their dirt-gripping, oil-drinking power

another reason for switching to **Scott Wipers**

This remarkable new product protects men and metal . . . steps up efficiency all year around!

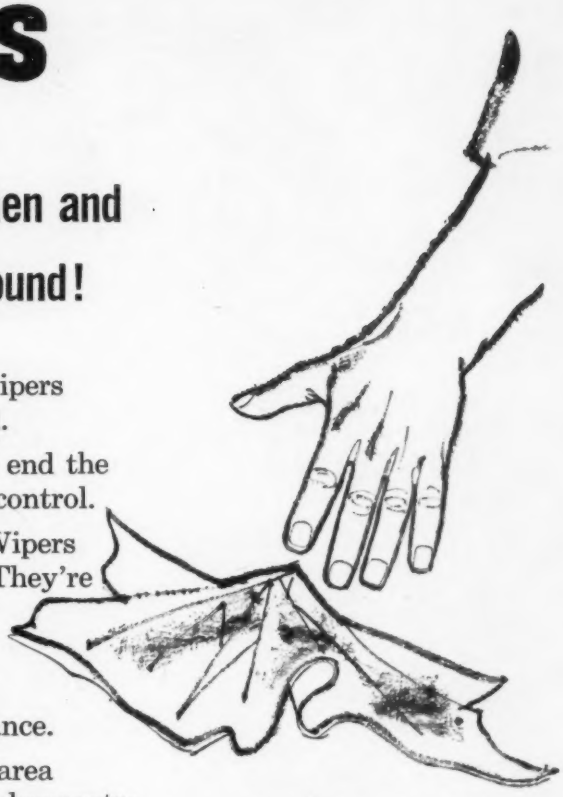
Because a fresh one is always available—Scott Wipers provide a constant source of clean wiping material.

Scott Wipers are sanitary and disposable. They end the laundering problem . . . simplify distribution and control.

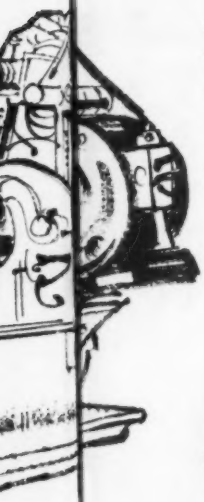
Throughout the metalworking industry, Scott Wipers are providing ready answers to wiping problems. They're two-ply and tough—yet soft and absorbent. And they stay tough even when soaked in solvents.

Compare them with whatever wiping material you're using now—for cost, convenience, performance.

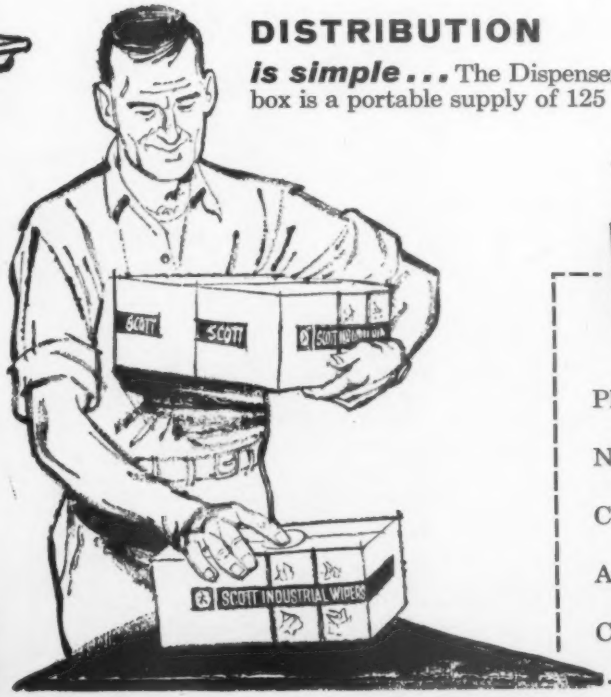
The Scott representative or distributor in your area stands ready to help you set up a production line demonstration in your plant. Call him or mail this coupon today.

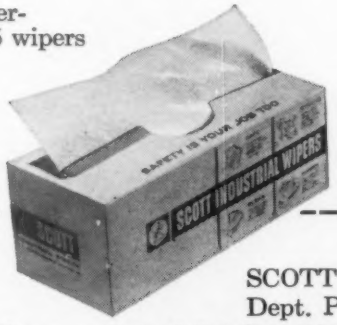


***And, best of all, Scott Wipers are* DISPOSABLE!**



DISTRIBUTION
is simple . . . The Dispenser-box is a portable supply of 125 wipers





SCOTT PAPER COMPANY
Dept. P-B Chester, Pa.

Please send me full information on Scott Industrial Wipers.

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Company_____

Address_____

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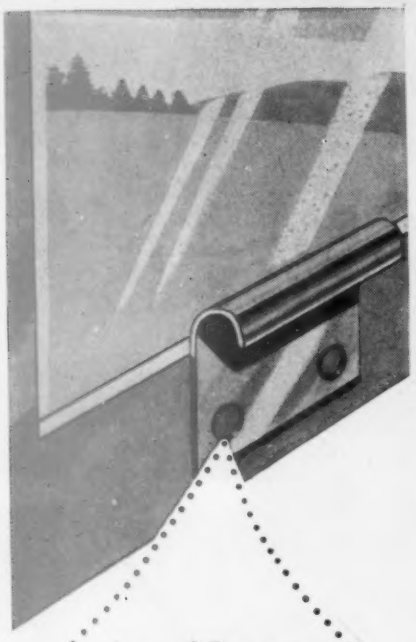

An Alcoa Aluminum Fastener should be used here!

It's an aluminum window-lift assembly, worth the lasting strength of Alcoa® Aluminum Fasteners. You avoid galvanic and atmospheric corrosion. You get perfect color match; you get the very highest quality product. Your local Alcoa distributor has a complete stock.

P. S. In this window-lift assembly, we suggest an aluminum 78° countersunk rivet from Alcoa's complete line of aluminum fasteners.

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2248-G Alcoa Building, Pittsburgh 19, Pa.
Gentlemen:
Please send complete specification data and samples of your aluminum fasteners.

name _____
title _____
company _____
address _____

Always Fasten Aluminum with Alcoa Aluminum Fasteners

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New York Association Meets

Featured speakers at the May meeting of the Purchasing Agents Association of New York were Mr. Edward Walther, a partner in the firm of Management development Associates, who addressed the afternoon forum on the topic "Is Experience Your Worst Teacher," and Dr. Lionel Ruby, Chairman of the Philosphy Department of Roosevelt University in Chicago, who discussed "The Art of Making Sense" after the dinner meeting.

Mr. Walther pointed out that past experience can be misleading because people tend to recall the similarities between current problems and past experience while overlooking the differences. He suggested emphasizing "the differences in the situation rather than the similarities," ponting out that just because a marketing plan, for example, failed 20 years ago is no indication that it might not work today.

Illustrating his talk with visual examples of how experience can trick the mind into making false assumptions, Mr. Walther called on his audience to overcome resistance to change and to take time once in a while to stand back and reappraise current work methods. "Experience," he cautioned, "is a good teacher only if we learn how to identify its significance."

At the dinner meeting Dr. Ruby spoke on the art of logical thinking and its application in buying situations. No rules can substitute for facts, he pointed out, and warned also that much of our trouble in work relationships stems from the ambiguity of language. Emotions are another source of difficulty, Dr. Ruby said, mentioning that "all too often we think with our glands instead of our minds.

* * *

Rhode Island Ass'n

Members of the Rhode Island Purchasing Agents Association recently made one of their most interesting plant visitations. They toured the U. S. Naval Air Station at Quonset. At their regular dinner meeting, they were privileged to have as guest speaker, Patrick McGinnis, president of the New York, New Haven and Hartford Railroad.

New members of the Association include: Joseph J. Buckett, Bulova Watch Co.; William S. Riley, Allied Printing Co.; James Sanek, Royal Electric Co.; and Ivan F. Sweeney, Barker Chadsey Co.

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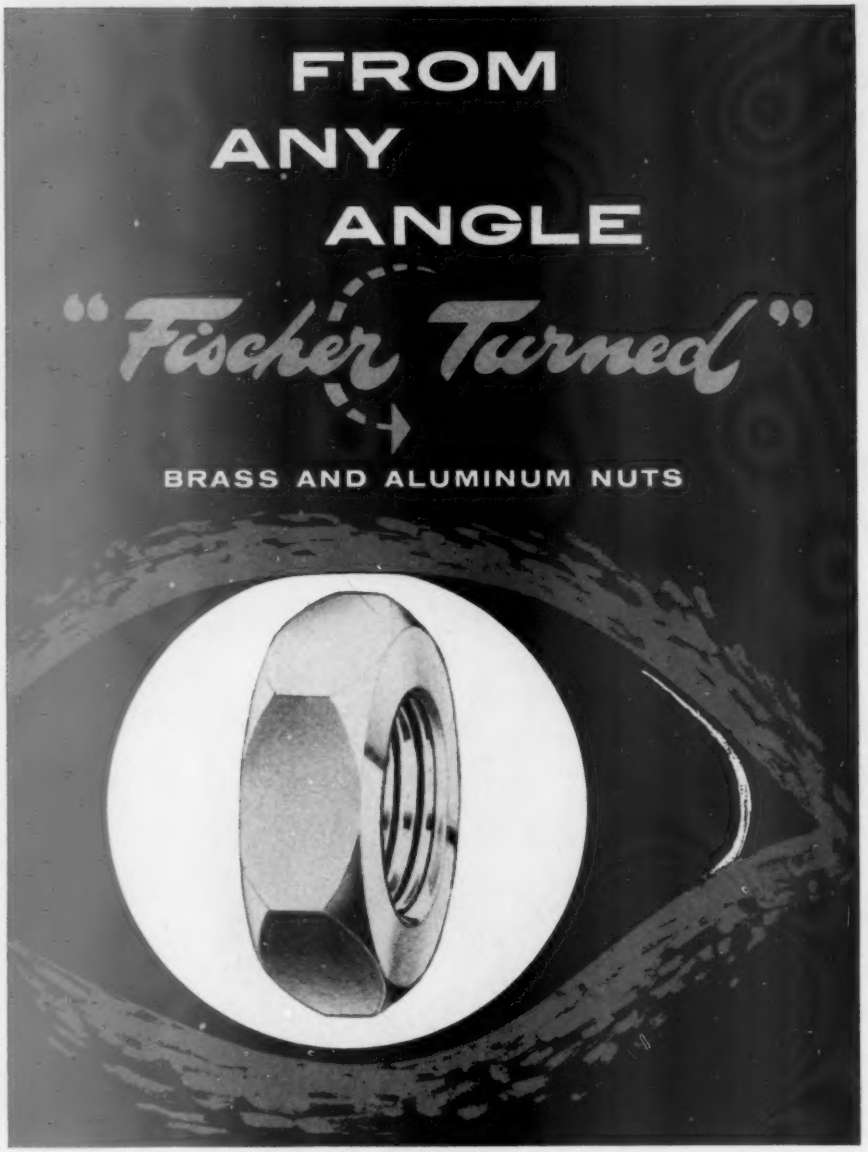

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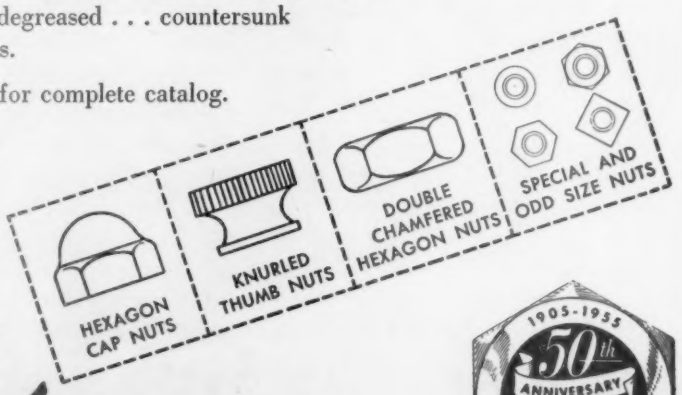

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New England Ass'n Members Visit Wyman-Gordon Plant

On May 19, members of the New England Purchasing Agents Association had one of their most interesting plant visitations of the year. They toured the 23 acre plant of the Wyman-Gordon Company in Grafton, Mass. Highlight of the trip was Wyman-Gordon's 35,000 ton forging press—the largest press in operation in the country.

The May meeting was election night. The meeting started with an afternoon workshop session during which the movie, "It's Your Decision," was shown. Featured speaker at the dinner meeting was Wilbur B. England, professor of marketing, Graduate School of Business Administration, Harvard University. His subject was of considerable direct interest to many members. It was "Problems in Selecting Buyers."

The nominating committee consisting of Charles Fish, Vincent Godlesky, Charles Hughes, Stearns Smalley, and Herbert Layport, chairman, presented a slate of officers to be voted upon. Members chose George D. Seguin of the Norton Company to serve as president of the Association during the coming year. Other newly elected officers are: Donald I. Holbrook, Rust Craft Publishers Inc., vice president; Albert W. Richards, Sylvania Electric Products, treasurer; Robert E. Shillady, New England Power Service Co., national director; and Herbert Layport, Wyman-Gordon Co., alternate national director. Chosen as directors for two years are: William S. Field, Koehler Manufacturing Co., William C. Kendrick, H. P. Hood & Sons Inc.; and Robert S. Mullen, Harvard University.

New members of the Association include: Nicholas Argyrople, Builders Iron Works; Ralph Arms, J. H. Emerson Co.; and Stanley W. Davis, Boston Consolidated Gas Co.

* * *

Tri-City Association

At their May meeting, members of the Tri-City Purchasing Agents Association selected their officers for the coming year. Elected were: W. M. Davis, president; F. W. Macy, first vice president; G. W. Thomas, second vice president; R. P. Choate, third vice president; T. R. Sterrett, secretary; R. G. Neville, treasurer; and W. H. Rodgers, national director.

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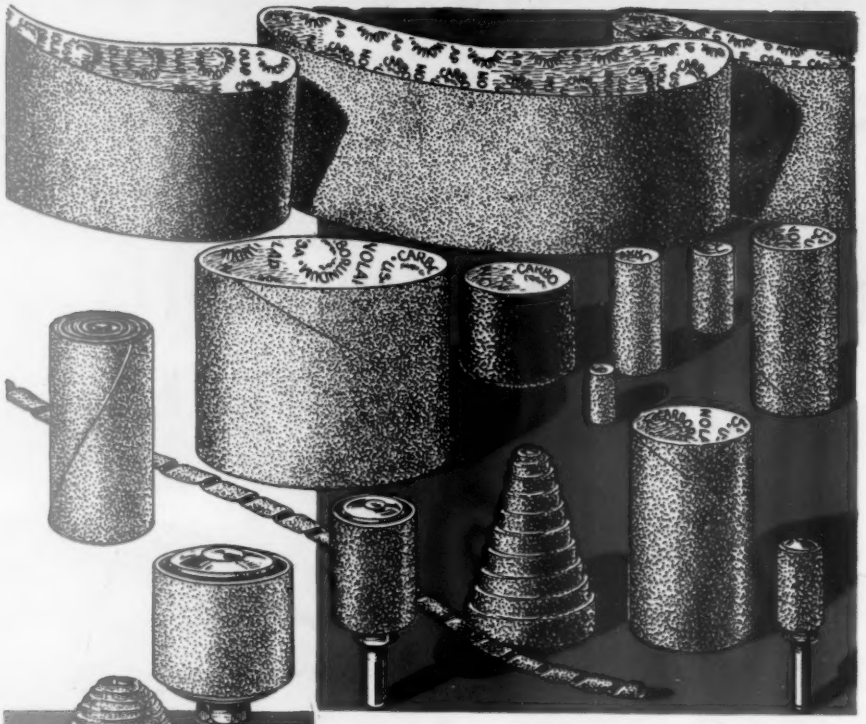

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For More Information Circle No. 243 on Inquiry Card—Page 17

Alan Francis Addresses B. C. Association

Guest speaker at a recent meeting of the Purchasing Agents Association of British Columbia was Alan C. Francis. He is assistant purchasing agent of the Goodyear Tire & Rubber Co. of Canada Ltd. and the first president of the newly formed Canadian Association of Purchasing Agents.

The topic chosen for his address was "Purchasing Comes of Age". Mr. Francis gave a detailed account of the growth of purchasing in Canada from 1921 until the present day and pointed out our beneficial affiliation with N.A.P.A. He affirmed that we have received good value in the past from our American friends but the time has come for us to stand on our own feet. 150 members have indicated that they will hold dual membership in the C.A.P.A. and N.A.P.A.; Mr. Francis believes that these members will be able to assist all members as we will get their reports on the American situation as they happen.

He reported that at present there are twelve Associations in C.A.P.A. with new groups expected before the end of the year. Prospects are bright for further groups to be formed in Quebec and the Maritimes, if the size of the Association could be changed to 25-30 members.

Mr. Francis said the C.A.P.A. is looking ahead and hopes to interest groups in Great Britain and other Commonwealth countries to bring about an International Council; then this strong body would be able to supply information from all parts of the world and be of tremendous value to all purchasing agents.

A special meeting of the Association was held to hear N.A.P.A. President G. W. Howard Ahl speak on "Purchasing and Management".

He was introduced by Mr. E. O. Haymond, vice-president, District No. 1, N.A.P.A. Mr. Ahl, in his address, stressed that the Purchasing Agent must prove himself worthy of a place on the management team. To do this he must conduct himself in his thinking and in the administration of his department on a managerial level. He must know not only his own function but the functions of the other departments of his firm and work with them as a team. In Mr. Ahl's words: "The Purchasing Agent must mend his own fences first, before he can consider himself worthy of a place on the management team".

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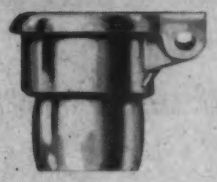
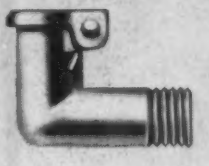


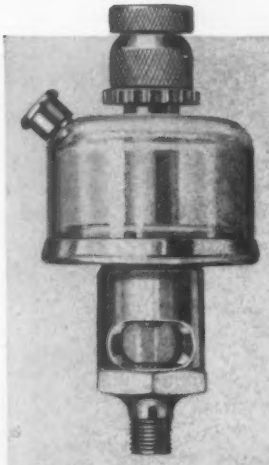
OIL HOLE COVERS

This model is designed to fit into a simple drilled hole. Ideal for use on small motors, generators, starters and light machinery—for dependable oil hole protection at moderate cost. Larger sizes frequently used as filler caps on tanks or reservoirs. Style R—No. 305.



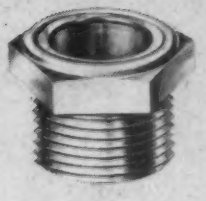
OIL CUPS

Accurately machined from a solid brass one-piece forging, this oil cup permits safe, dependable application of lubricant at very low cost. Used widely on motors and small machinery requiring side oiling. Style L—No. 1202.



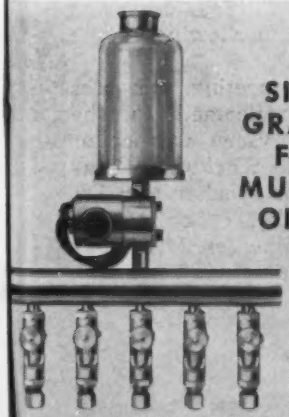
SIGHT GRAVITY FEED OILERS

Rate of oil flow regulated by needle valve, directly observed through sight glass in stem. Shut-off knob does not affect needle valve adjustment. Visible oil supply. Non-breakable. Tops in convenience and dependability, at low cost. Style NFU—No. 3602-A.



GEAR CASE GAUGES

This oil gauge plug permits instant checking of oil level within a transmission or gear case. For use where construction permits insertion in tapped hole. A valuable addition to any such equipment — at very low cost. Style BW—No. 4042.



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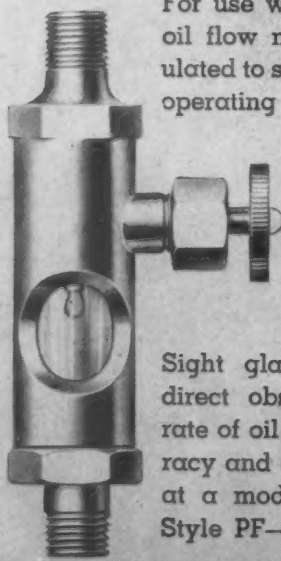
This one unit replaces 3 to 8 individual oilers. Maximum practicality in a small central lubrication system. Positive cut-off during idle periods. Individual vibration-proof needle valve adjustments. With solenoid control (Illustrated): Style MDS—No. 4685-A. Without solenoid:

SIGHT GAUGES



For use where rate of oil flow must be regulated to suit changing operating conditions. Needle valve permits extremely accurate adjustment of oil feed. Sight glass provides direct observation of rate of oil flow. Accuracy and convenience at a moderate price. Style PF—No. 4290.

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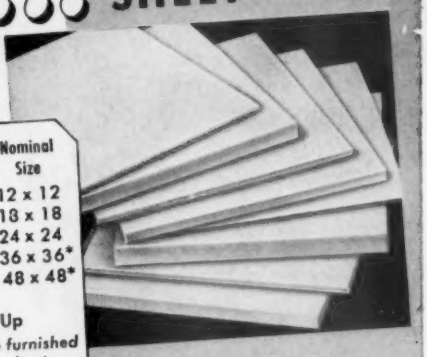

Thickness Inches	Nominal Size
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3/32	18 x 18
1/8	24 x 24
3/16	36 x 36*
1/4	48 x 48*
3/8	
1/2 & Up	

* Can be furnished in 1/2 sheets

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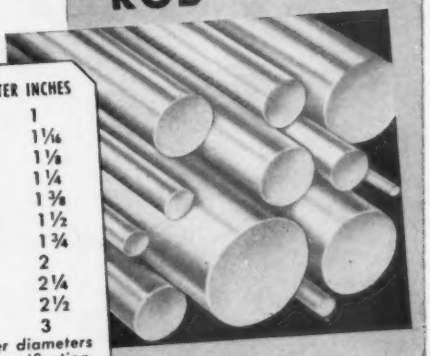

DIAMETER INCHES	
1/4	1
5/16	1 1/16
3/8	1 1/8
7/16	1 1/4
1/2	1 3/8
9/16	1 1/2
5/8	1 3/4
3/4	2
7/8	2 1/4
	2 1/2
	3

Other diameters on specification

TUBING

TYPICAL SIZES INCHES	
O. D.	I. D.
3/8	1/4
1/2	3/8
3/4	1/2
1	3/4
1 1/2	1
2 1/2	1 1/2
3	1 3/4

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For More Information Circle No. 245 on Inquiry Card—Page 17

Conn. PAs Meet in New Britain

On May 24, members of the Purchasing Agents Association of Connecticut met at the Shuttle Meadow Golf Club in New Britain. They had returned from an interesting tour of the Stanley Electric Tool Division of the Stanley Works.

The evening meeting commenced with a forum on inventory control. Members got a great deal of useful tips in handling this important phase of their activity from the discussion.

Featured after-dinner speaker was Francis (Fritz) Barzilauskas, coach at Yale university.

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St. Louis PAs Spend a Day on Campus

Purchasing Agents Association of St. Louis recently held its Third Annual Educational Meeting. This year's meeting was held at Rebstock Hall of Washington University. The meeting opened with introductory remarks by Leo Paradoski of Federated Metals Division, American Smelting & Refining. PAs were then welcome to the campus by John W. Bowyer, assistant dean of Washington University Business School.

Then came the real meat of the program. Robert F. Moore, manager, Purchase Analysis Department, Ford Division, Ford Motor Co. delivered an address on "Purchasing Analysis." Mr. Moore described how this new purchasing and management tool is used to get better values for Ford Motor, and how it can be applied to other purchasing departments.

Following an intermission, the popular and very educational film, "It's Your Decision" was shown. Leo Paradoski acted as moderator during the stimulating discussion period which followed the showing of the film.

At the dinner meeting, members were officially welcomed to the University by Vice Chancellor Thomas Edward Blackwell. Featured after-dinner speaker was Dr. Heinz E. Luedicke, editor of the Journal of Commerce. Mr. Luedicke discussed current "Economic Trends."

New members of the St. Louis Association include: J. S. Penney Jr., Harrower Laboratory Inc.; Edward F. Schweich, Lewin-Mathes Co.; Edwin H. Bruenger, Watlow Electric Manufacturing Co.; Ambrose A. Moss, Corneli Seed Co.; and E. G. Johnson, Laclede Steel Co.

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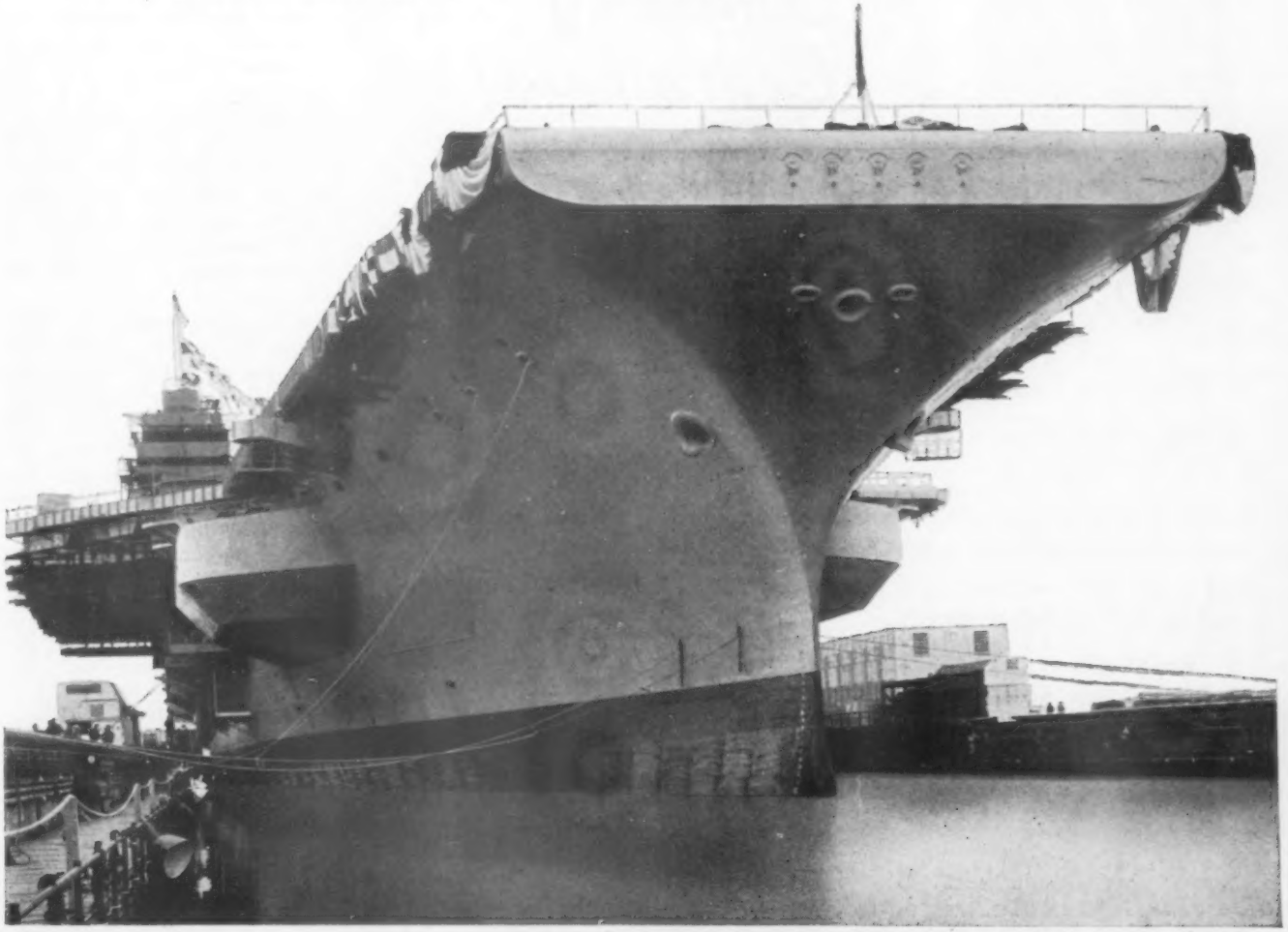

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For More Information Circle No. 247 on Inquiry Card—Page 17

E. G. Wintle Elected Head of New Orleans Association

The May meeting of the Purchasing Agents Association of New Orleans featured the election of officers for the coming year. The Nominating Committee composed of Walter Eagan, Hardy Klarquist, Stanley Mayo, Emile Morvant, and M. F. Hilbert presented a slate of candidates to be voted upon. The newly elected officers are: E. G. Wintle, president; G. U. Sanford, first vice president; G. E. Ducos, second vice president; Edward J. Koehl, national director; L. H. Moss, alternate national director; G. A. Lyncker, treasurer; and Frank J. Basile, secretary.

The April meeting was highlighted with the attendance of local salesmen. The speaker of the evening was Ben Franklin Bills, special sales consultant for the Rheem Manufacturing Company, New York City. Mr. Bills has twenty-six years experience buying for his own construction companies and has provided sales training for more than 500 companies and over 135,000 salesmen. He gave some high lights of buyer-seller relationship well spiced with humor.

Robert Elsasser, local economist and regular monthly speaker, advised that government spending is up and that business is generally good, particularly in the New Orleans market where customers are not too easy to sell. He predicted a sharp rise in retail sales nationally. On the rough side he warned that we can expect an increase in taxes and government control on some scarce items in the not too distant future.

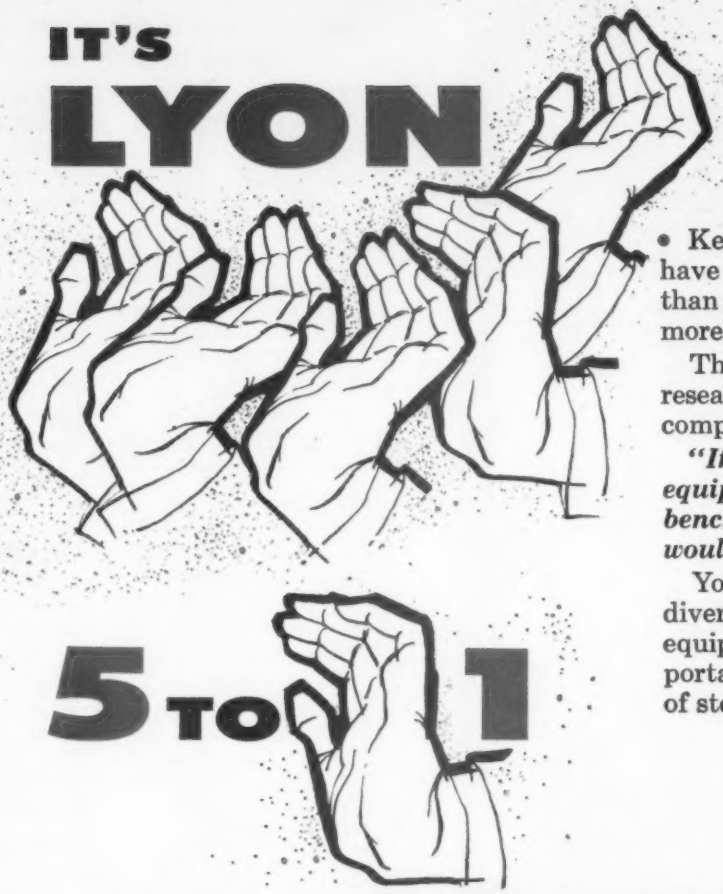
George Bosworth reported on the recent Seventh District Conference. His announcement that the Florida Association is putting in a bid for the National Convention to be held in Miami in 1958 or 1959 was received with great enthusiasm. The New Orleans Association went on record as backing the Floridians one hundred percent and promising full cooperation.

* * *

Federal Buyers of N. Calif.

Guest speaker at a recent meeting of the Federal Procurement Officers Association of Northern California was Robert B. Bradford, regional director, General Services Administration, San Francisco. His topic was "Current Developments in GSA."

IT'S LYON 5 TO 1



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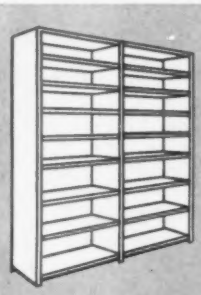

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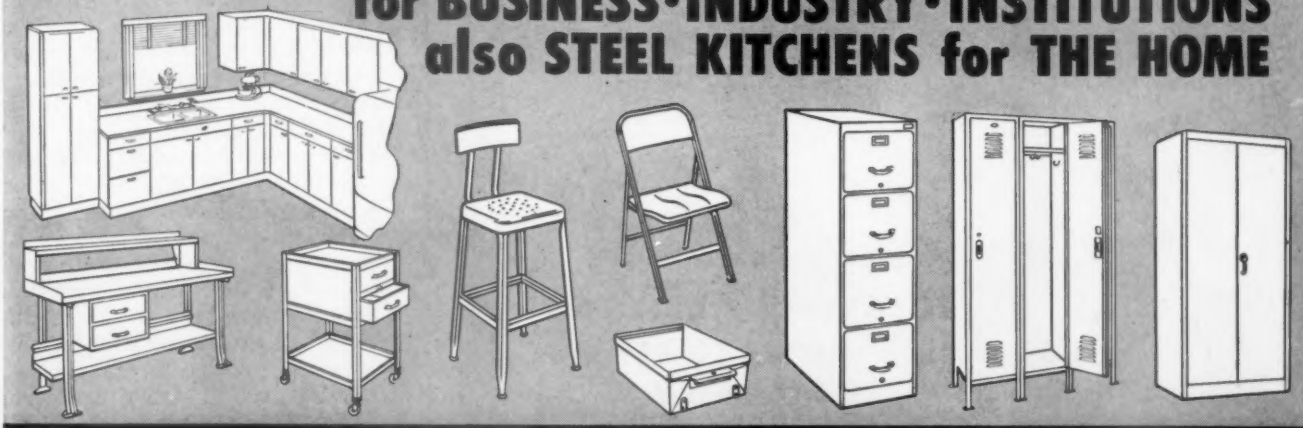

A PARTIAL LIST OF LYON STANDARD PRODUCTS

• Shelving	• Kitchen Cabinets	• Tool Toters	• New Freedom Kitchens	• Flat Drawer Files	• Folding Chairs	• Service Carts	• Tool Stands
• Lockers	• Cabinet Benches	• Bar Racks	• Display Equipment	• Revolving Bins	• Coat Racks	• Sorting Files	• Shop Boxes
• Stools	• Storage Cabinets	• Tool Boxes	• Toolroom Equipment	• Filing Cabinets	• Work Benches	• Drawer Units	• Tool Trays
• Bin Units	• Drawing Tables	• Parts Cases	• Wood Working Benches	• Hanging Cabinets	• Bench Drawers	• Hopper Bins	• Shop Desks

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80 MODELS 9 TYPES

A BUDA JACK *FOR EVERY NEED*

BUDA BALL BEARING JOURNAL JACKS
15, 25, 35 & 50-ton capacities... 4 to 8 inches of lift.

Ratchet Lowering Jacks— 5 to 15 tons

Ratchet Trip Jacks— 15-ton Cap.

Screw Jacks— 10 to 24 tons

Standard Speed Ball Bearing Screw Jacks 15 to 75 tons

Ball Bearing Journal Jacks— 15 to 50 tons

"Two Speed" Hydraulic Jacks— 25 to 50 tons

With Buda's complete line of field and service-tested jacks, you can meet every need in your plant . . . on the production line for pressing, fitting and assembling . . . in the machine shop for moving, holding and positioning equipment . . . in the shipping room for lifting while crating or banding . . . in *every* department that needs a lift! Each Buda Jack is built for easy and safe operation even when lifting at rated capacity — designed for quick and simple maintenance. Remember, there's a Buda Jack for every lifting job up to 75 tons. See your nearby Buda Jack Distributor now . . . or write for Bulletin 1515B for complete details on Buda's entire line of mechanical and hydraulic jacks.

ALLIS-CHALMERS MANUFACTURING COMPANY
BUDA DIVISION
Harvey, Illinois

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Old Dominion Ass'n Holds Spring Meeting

Richmond's Hotel Jefferson was the scene of the two-day spring meeting of the Old Dominion Purchasing Agents Association. The first day's session started with an interesting and educational plant visit to Liggett & Myer's Chesterfield cigarette plant. Later in the afternoon, members heard an interesting talk on "Purchasing Research & Analysis" by R. F. Moore, manager, Purchase Analysis Department, Ford Division, Ford Motor Co. Mr. Moore described the tremendous cost savings possible by incorporating purchase analysis in the procurement operation.

The program for the first day concluded with an evening banquet. Speaker was W. T. Rice, president of the Richmond, Fredericksburg & Potomac Railroad. His topic was "The Railroad Story."

Highlights of the second day's session included a presentation of the film, "All I Need Is A Conference," and a discussion of "The Price Pulse in a Feverish Economy" by C. W. Williams, vice president, Federal Reserve Bank of Richmond. Members are looking forward to their summer meeting which will be held at The Homestead in Hot Springs, Va.

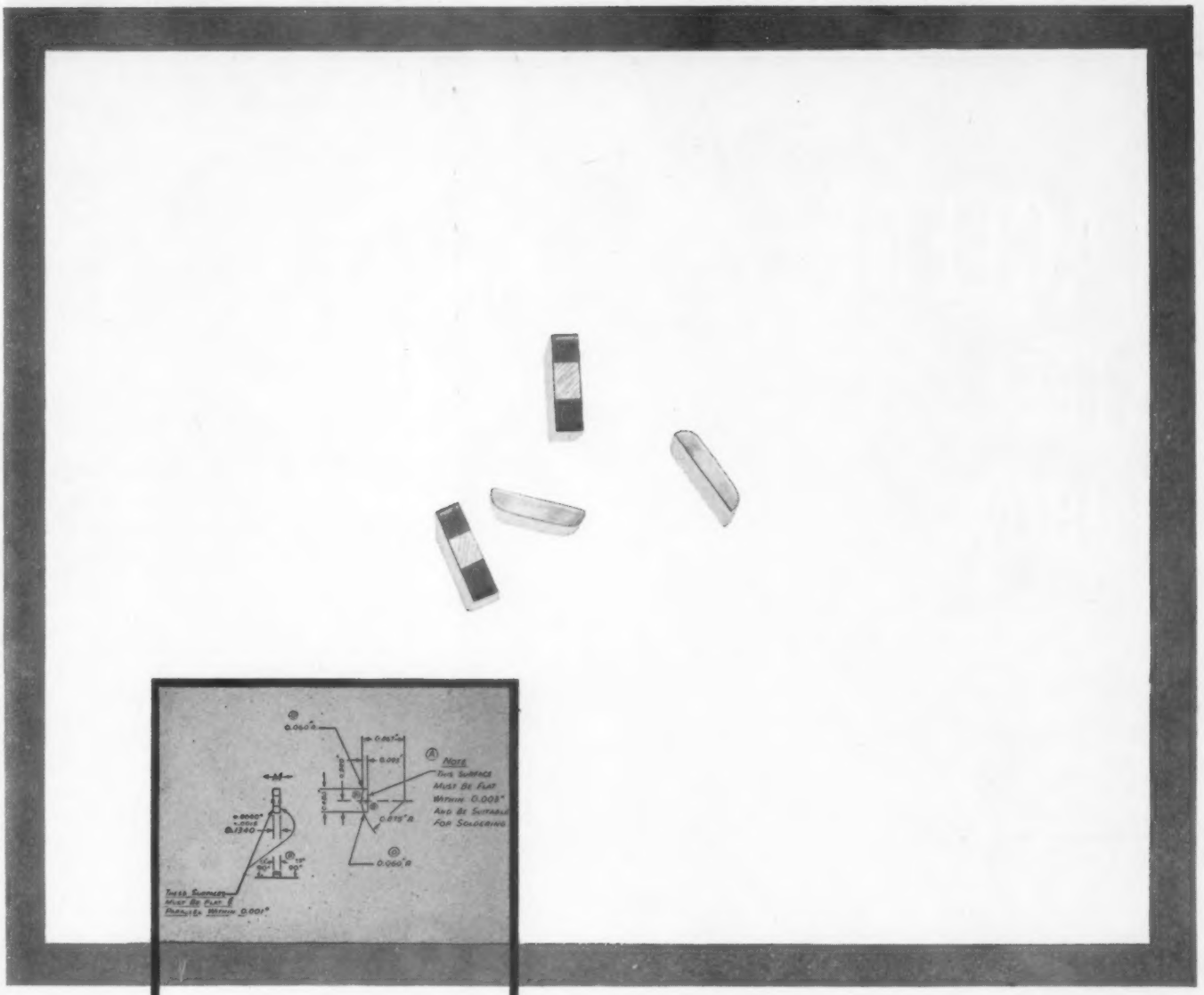
Wisconsin Chapter, NIGP Meets at Madison

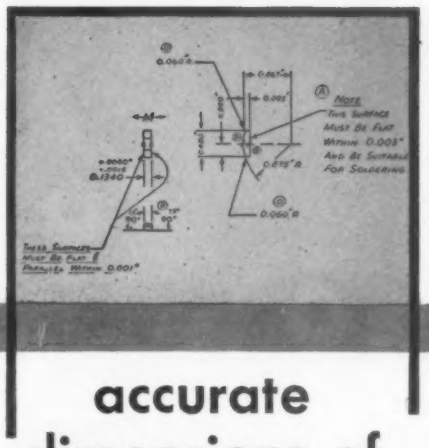
The quarterly meeting of the Wisconsin Chapter, National Institute of Governmental Purchasing, was held at Madison, Wis., April 29th. Executive Director Albert Hall of NIGP was present from Washington, and reported on recent action taken to enable municipalities to obtain equipment for civil defense purposes, with the federal government paying a portion of the expense, and the possibilities of preferential purchase of war surplus material for educational and health use.

A "Suppliers' Viewpoint" panel discussion revealed salesmen's grievances in respect to getting attention from city, county, and state purchasing agencies and buyers' difficulties with salesmen who by-pass established purchasing channels.

Another round table discussion dealth with "The Symptoms of Collusive Bidding"—a continuing problem in governmental purchasing, on which little corrective action has been taken by state and federal law

(*Please turn to page* 220)





accurate dimensions of ACCUMET PRECISION INVESTMENT CASTINGS mean improved uniformity . . . lower cost

A manufacturer of hearing aids, using magnets in the form of sand-cast bars, found grinding and cutoff costs excessive . . . dimensional control difficult . . . breakage high.

Crucible engineers suggested producing the magnets to close tolerances by *Accumet® Precision Investment Casting*, using a special patented Crucible Alnico grade. Results? Costly finishing operations were almost entirely eliminated, and magnetic properties improved. The manufacturer got a *better magnet at a lower cost.*

When you have a product requiring close tolerance, quality parts of any size, be sure to consider the advantages of Accumet Precision Castings. They are also available in stainless, alloy and cobalt-nickel base grades. Your nearby Crucible representative can show you how they cut production time . . . save you money. *Crucible Steel Company of America, Henry W. Oliver Building, Pittsburgh 30, Pa.*

CRUCIBLE first name in special purpose steels

Crucible Steel Company of America

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(*Continued from page* 218)

enforcement authorities, although one Wisconsin case was mentioned in which four manufacturers and one dealer were fined after identical bids on typewriters had been made to the state.

The chapter has been invited to inspect the manufacturing facilities of the Wisconsin State Prison at Waupun. This is of particular interest to the group because almost all of the convict-made products are purchased by state, county, and city purchasing agents.

The third quarterly meeting will be held at Sheboygan, July 21st.

Lehigh Valley Ass'n Meets

Peter J. Clarke, director of purchases of Rohm & Haas of Philadelphia was featured speaker at a recent meeting of the Purchasing Agents Association of the Lehigh Valley. Mr. Clarke is chairman of the Eighth N. A. P. A. District Education Committee. He spoke on a topic of considerable interest and importance to every PA—"Job Security or Job Promotion for Purchasing Agents." Other highlights of the meeting include a report on the standards program by G. L. Baumgartner and a report on purchasing course curriculum by J. F. Lehner.

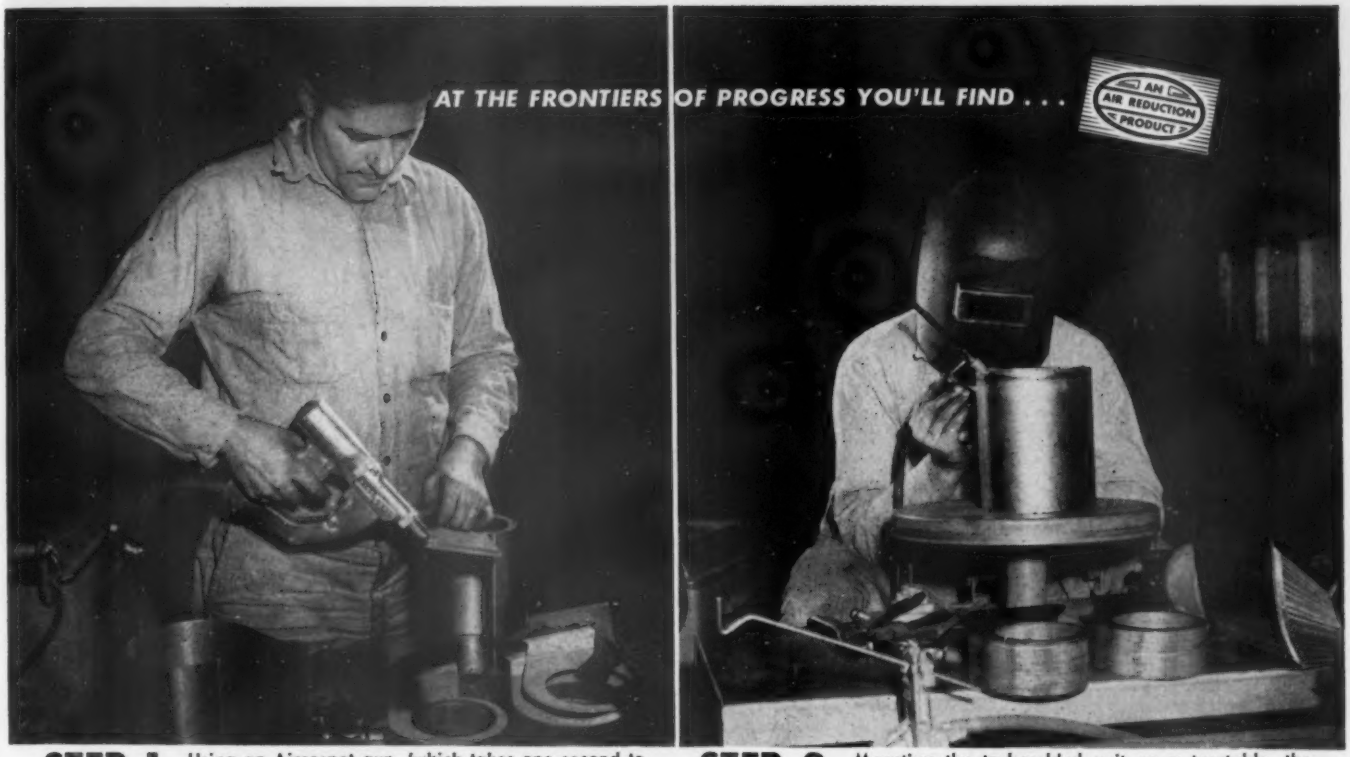
New members of the Association include: Donald E. Round, Weller Manufacturing Co.; Thomas C. Foote, General Crushed Stone Co.; Carl C. Kichline, Magnetic Windings Division, Essex Wire Corp.; and William L. Reese, Bundy Tubing Co.

Georgia PAs Elect Officers

At the May meeting of the Purchasing Agents Association of Georgia, B. F. Lamb of American Bakeries Co. was elected to serve as president for 1955-56. Other newly elected officers are: Ernest Brewer, City of Atlanta, first vice president J. R. George, Jr., Otis Elevator Co., second vice president; J. W. Johnson, First National Bank of Atlanta, treasurer; Mrs. Marie Sayne, Atlanta Gas Light Co., secretary; and W. H. Bryant, Noland Co., Inc., national director.

Serving as local directors are E. W. McCain of C. & S. National Bank, Graham Mitchell of Southern States Equipment Co., and J. T. McDonald of Link Belt Company.

After the election, the film "It's Your Decision" was greatly enjoyed.



STEP 1. Using an Aircospot gun, (which takes one second to make a strong, sound spot weld), the Falstrom operator tack-welds flange on a metal cover. An average of 10 tacks are needed. The metal is 16 gauge mild steel.

STEP 2. Mounting the tack-welded unit on a turntable, the same operator exchanges the Aircospot gun for an H8-B Heliweld holder. The Airco Heliweld process joins the circumferential seam at a speed of 16 inches per minute.

Falstrom Company
...eliminates jigs and back-up plates with AIRCOSPOT
...speeds seam-welding 75% with HELIWELDING!

It used to take 17 minutes to tack and weld a complete metal cover at the Falstrom Company, Passaic, N. J. Now, with a combination of Aircospot and Airco Heliwelding, this operation has been reduced to a fraction of the time.

Previous methods of tack-welding required the use of jigs and fixtures—a procedure that hampered the operator and slowed production. Aircospot, however, tack-welds from just one side of the metal. It eliminates jigs and back-up plates, completely streamlining the work flow. At the same time, by using Heliwelding instead of oxyacetylene welding, Falstrom was able to reduce welding time 75%. This faster method of welding thin sections of metal provided further economies as the end product required less finishing and grinding.

One, or both, of these Airco inert-gas shielded arc welding processes can provide similar savings in your particular operation. Contact your local Airco Sales Representative or Authorized Airco Dealer for an on-the-spot demonstration in your plant—or—write Airco direct for complete information. Request Aircospot Catalog #2315, Heliwelding Catalog #2300.

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AIR REDUCTION

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Divisions of Air Reduction Company, Incorporated, with offices and dealers in most principal cities

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Products of the divisions of Air Reduction Company, Incorporated, include: AIRCO—industrial gases, welding and cutting equipment, and acetylenic chemicals • PURECO—carbon dioxide, liquid-solid ("DRY-ICE") • OHIO—medical gases and hospital equipment • NATIONAL CARBIDE—pipeline acetylene and calcium carbide • COLTON—polyvinyl-acetates,—alcohols, and other synthetic resins.

For More Information Circle No. 252 on Inquiry Card—Page 17

Whatever your sprocket needs, your Chain Belt Company Distributor is ready and able to serve you...*fast!*

He handles the quality line...Rex Sprockets...both standard type and with Taper Lock Bushings. From his stock he can deliver the sprockets you want...when you want them. And he's backed up by the strategically located Chain Belt Company Warehouses and Plants to assure unequaled service.

Don't forget that Rex Sprockets are "Tops" for quality. Unsurpassed in design, materials and workmanship. You'll get longer service life, both from the sprockets and chains that run on them.

For all your sprocket needs, call your local Chain Belt Distributor or write Chain Belt Company, 4764 West Greenfield Avenue, Milwaukee 1, Wisconsin.

Call **SPROCKET HEADQUARTERS...**

YOUR CHAIN BELT DISTRIBUTOR

For name, address and phone number,
look in your local classified telephone directory under Rex Chains.

For More Information Circle No. 253 on Inquiry Card—Page 17

SUPERMARKET FOR BOLTS & NUTS

ONE-STOP SHOPPING AT YOUR LAMSON DISTRIBUTORS

● An Industrial Distributor is in business for just one reason: to provide Industry with a convenient "shopping center" for thousands of products.

Through your Lamson Industrial Distributor you can purchase a wide selection of bolts, nuts, screws and other fastener products that he keeps in stock. You can buy in small or large quantities, get immediate delivery and factory-backed engineering service when you require it.

So when you purchase fastener products, shop "next door" at your Lamson Distributors. It's the efficient, convenient and economical way to buy.

The LAMSON & SESSIONS Co.
1971 West 85th St. • Cleveland 2, Ohio
PLANTS AT CLEVELAND AND KENT, OHIO • BIRMINGHAM • CHICAGO

Lamson + Sessions

FOR PROMPT DELIVERY AND HELPFUL SERVICE, ORDER FROM YOUR LAMSON DISTRIBUTOR

For More Information Circle No. 254 on Inquiry Card—Page 17

UNITCASTINGS
PLAY AN IMPORTANT PART IN MANUFACTURER'S LEADERSHIP..

Accuracy cuts cost.
Less than 1 hour machining time is required per unit assembly with Unitcastings.

Accuracy.. Appearance.. and Dependability

..ADD UP TO TOP QUALITY PRODUCT!

A nationally known manufacturer of house trailer tow-bar mechanisms keeps quality up and costs down by specifying *Unitcastings*. Dimensional accuracy, internal soundness and good surface appearance hold finishing costs to a minimum and help retain customer acceptance. In less than six years of production and over 202,000 parts later, less than ½ of 1% of the total castings shipped have been returned for any reason.

Beginning with the original design of the castings, Unitcast's engineering service has kept pace too, by continually modernizing the design to suit automobile chassis improvements. This is just one of the many Unitcast Foundry Engineering Services available to our customers.

Let Unitcast help you modernize your product by including foundry standards in the design. Keep your production cost competitive. . .write today!

UNITCAST CORPORATION • Toledo 9, Ohio

In Canada: CANADIAN-UNITCAST STEEL, LTD., Sherbrooke, Quebec

Unitcast

QUALITY STEEL CASTINGS

For More Information Circle No. 255 on Inquiry Card—Page 17

Rochester Ass'n Members Elect New Officers

It was election night for the Purchasing Agents Association of Rochester. Chosen to succeed G. J. Andres as president was W. T. Naylon of General Railway Signal Works. Other newly elected officers are: Edwin A. Galen, Eastman Kodak Co., first vice president; Edwin H. Stiffler, Will Corporation, second vice president; Donald S. Judd, American Brake Shoe Co., third vice president; and Kendrick S. French, Eastman Kodak Co., secretary-treasurer. Serving on the

Frank E. Whyte—he recently addressed the Rochester Association

board of directors are: John W. Averill, Stromberg Carlson Co.; James W. Conklin, Toledo Scale Co.; George E. Lotspike, Morgan Machine Co.; Charles H. Wadhams, Curtice Bros. Co.; and Wilson B. Wight, Bausch & Lomb Optical Co.

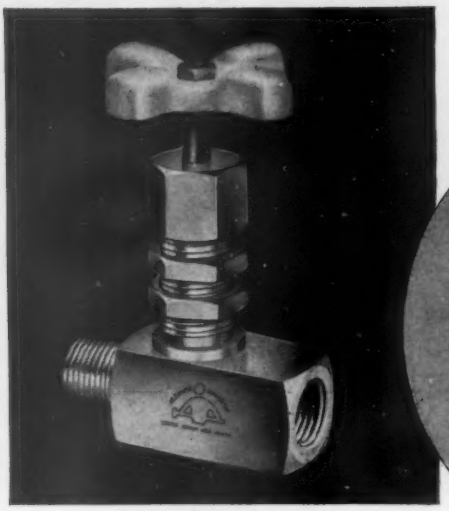
Guest speaker at the meeting was Frank E. Whyte. Mr. Whyte is manager of purchasing of the Carborundum Co. of Niagara Falls, N. Y. and, at the time of the meeting, he was also vice president of N. A. P. A. District Eight. He has since been succeeded at the latter post by Pete Wight who is an ex-president of the Rochester Association.

S. Jersey PAs Elect Officers

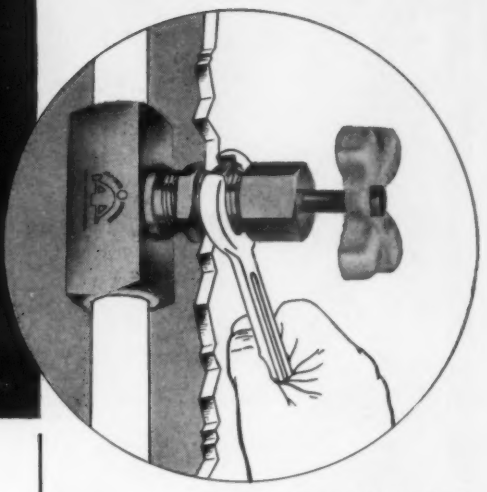
James I. Butzner of Socony Vacuum Oil Co. is the newly elected president of the South Jersey Purchasing Agents Group. Other officers are: Blaine Walshe, Atlantic City Electric Co., vice president; James F. Lodge, Allied Metal Stamping Co., secretary; and S. Dan Jones, Owens-Illinois Glass, treasurer. The group also elected a publicity committee consisting of

(*Please turn to page* 228)

For panel mounting with double female connections.



For panel mounting with male inlet; female outlet.



A quick, trim panel mounting with a twist of a wrench.

Panel mounted in seconds!

Did you know that the best needle valve is also best for panel mounting?

Look at the valves above . . . specifically designed for panel mounting. No holding fixtures are needed. Simply remove the packing nut and one of the holding nuts; slip the stem through the panel opening and reassemble. The valve handle is packed separately to speed up the job — literally done in seconds.

You get a neater installation at lower cost . . . just one more proof that we have thought of everything in the Marsh 1900 series. Note the unduplicated features opposite. Ask for Needle Valve Catalog covering all details.

MARSH INSTRUMENT CO. *Sales Affiliate of Jas. P. Marsh Corporation* **Dept. G, Skokie, Ill.**

Marsh Instrument & Valve Co. (Canada) Ltd., 8407 103rd St., Edmonton, Alberta

Houston Branch Plant: 1121 Rothwell St., Sect. 15, Houston, Texas

MARSH *Needle Valves*

MARSH

The ultimate in Needle Throttling Valves

All Marsh Needle Valves — for both panel and standard mounting — share these features that are combined in no other valves.

- **Maximum working pressure: 10,000 psi** — for water, oil, or gas. Equally effective in lower pressure ranges.
- **One piece.** Body and stem-guide are fused into one piece by Marsh "Conoweld" process. No danger of stem leaking or blowing out.
- **Precision machined and ground stem** —of 416 stainless steel. Easier to operate at higher pressures.
- **Finer regulation**—provided by long fine stem threads which also give added strength.
- **Machined from heavy bar stock**— Both body and stem-guide. Sturdiest basic construction known.
- **Deep "Marpak" packing**—longer lasting; easier to renew.
- **Deep throats and thread chambers** —for tight make-up of piping.
- **Handsome appearance**—Electro zinc plated body, set off by sturdy malleable iron handle finished in heavy, attractive, yellow baked enamel.
- **Clear markings.** Bodies marked in accordance with M.S.S. regulations showing size, material, service symbol, maximum pressure.

The standard series is shown opposite.

Standard globe pattern with double female connections.

Standard angle pattern with male inlet; female outlet.

Standard angle pattern with double female connections.

Standard globe pattern with male inlet; female outlet.

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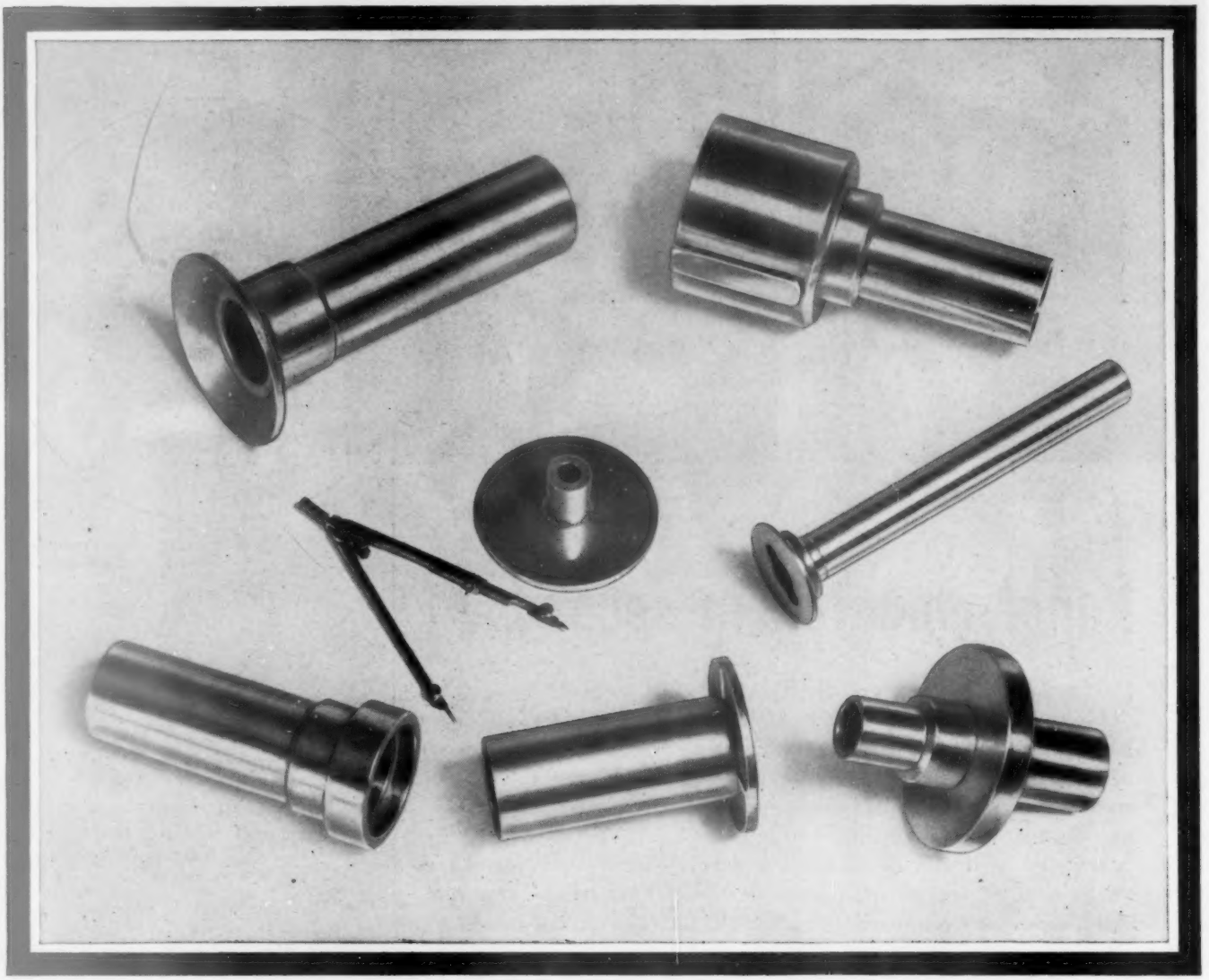

PICK ANY ONE, ALCOA CAN IMPACT IT IN ONE PUNCH

In a single press stroke, Alcoa forms seamless tubular parts like these with diaphragms, flanges, shoulders and ribs. And for parts like these, impact extrusion is the only economical method of one-operation forming. Alcoa Impacts combine the advantages of an extruded side wall and a forged bottom to give you ultimate lightness and strength.

If you have confined your thinking of impact extrusions to tooth-paste tubes and condenser cans, see what is being done today at Alcoa's Impact plant. For instance, we make a variety of nonsymmetrical parts; use strong alloys; produce heavy sections and long, thin tubular parts.

Your local Alcoa sales engineer offers unbiased help in your design problems. His intimate knowledge of the impact process may effect substantial savings to you. He is listed under "Aluminum" in the classified phone book. Aluminum Company of America, 1995-G Alcoa Building, Pittsburgh 19, Pennsylvania.

Your Guide to Aluminum Value

ALCOA ALUMINUM
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Fasten Aluminum With Alcoa® Aluminum Fasteners

Alcoa Makes Impact Extrusions to Your Specifications

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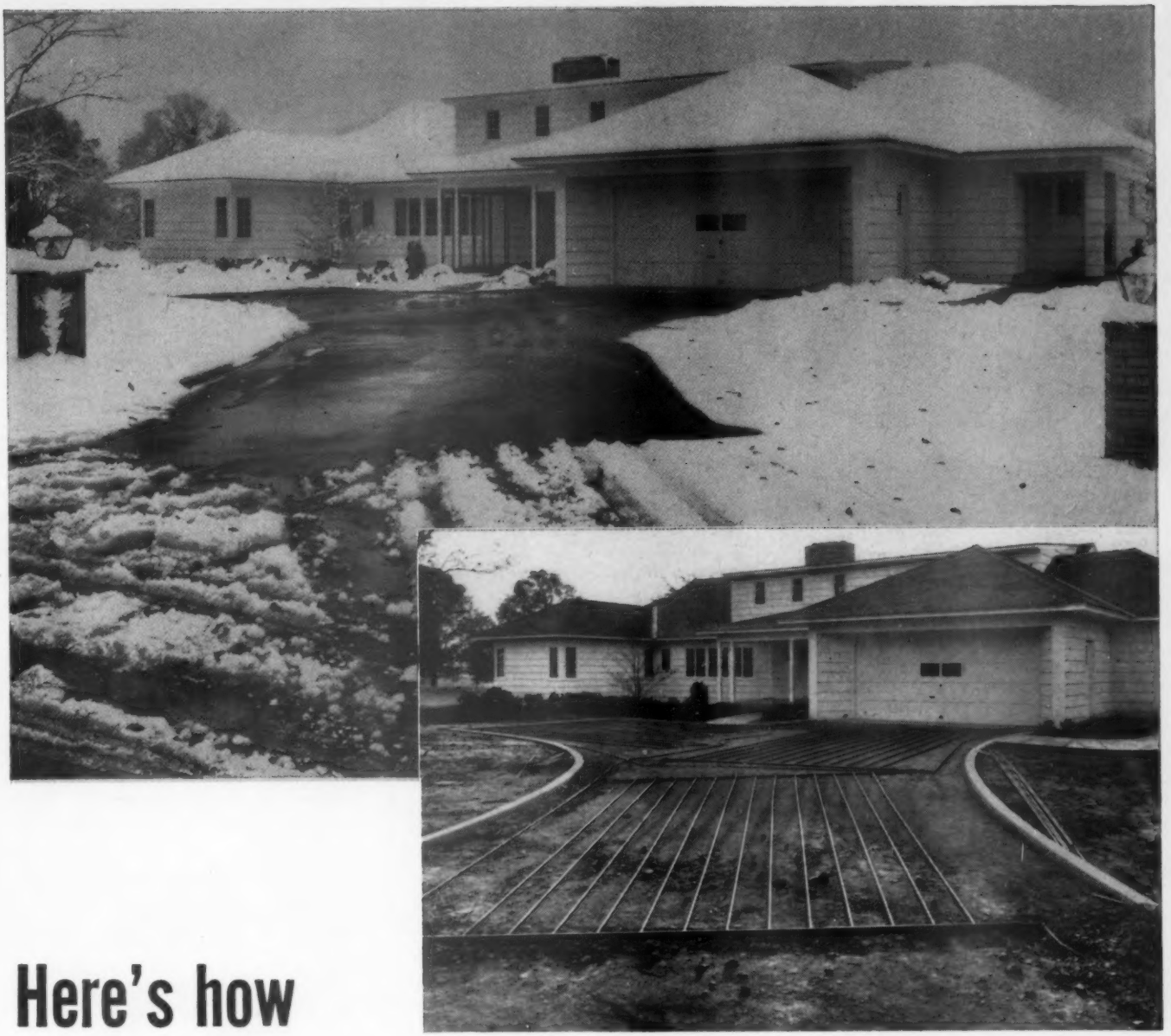

Here's how

a SPANG® CW steel pipe snow-melting system can work for you!

You can forget about snow removal all winter long . . . save yourself money . . . keep sidewalks, driveways and outdoor shipping platforms open in any kind of weather . . . build customer goodwill . . . eliminate an accident hazard. You can do all this with a good, reliable snow-melting system of SPANG CW Steel Pipe.

The best time to install a system is right now while the weather is good. All it takes is a little planning with your heating contractor. And the cost of a SPANG CW Steel Pipe Snow-Melting System is a lot less than you think.

SPANG manufactures its steel pipe under *quality-control* conditions and tests and inspects it thoroughly before shipment. This careful process will give you a *top-quality* installation with years and years of trouble-free service.

GET MORE INFORMATION TODAY!

Write to Spang-Chalfant for a free copy of the booklet "Steel Pipe Snow-Melting and Ice-Removal Systems." Then start planning your installation. And be sure the pipe is SPANG CW Steel Pipe!

SPANG-CHALFANT

DIVISION OF THE NATIONAL SUPPLY COMPANY

General Sales Office: Two Gateway Center, Pittsburgh, Pa. District Sales Offices: Atlanta, Boston, Detroit, Houston, Los Angeles, New York, Philadelphia, Pittsburgh, St. Louis

For More Information Circle No. 258 on Inquiry Card—Page 17

KEARFOTT FLOATED RATE INTEGRATING GYROS

KEARFOTT 6.05 x 10⁴ FLOATED GYRO

KEARFOTT 2 x 10⁴ FLOATED GYRO

Consistently Accurate

Their initial accuracy represented by the random drift is continuously repeated in day-to-day operation.

ANGULAR MOMENT GM.CM.²/SEC.	MINIMUM DETECTABLE RATE	TYPE OF TORQUER	TORQUER LINEARITY FULL SCALE	CHARACTERISTIC TIME	DIMENSIONS	WEIGHT POUNDS
6.05 x 10⁶ 2 x 10⁴	.01°/hr. 4.1°/hr.	A.C.Vane A.C.Vane	0.17% 0.1%	.0035 Sec. .0025 Sec.	3-3/4" Diam. x 6-1/8" long 2" Diam. x 3-7/8" long	6-1/2 1-3/8

Kearfott 6.05 x 10^6 and 2 x 10^4 Floated Gyros have basic construction features that impart this all-important reliability. The materials used in their construction are of similar coefficient of expansion, thus avoiding mass unbalance due to temperature changes. Displacement information is provided by an extremely linear AC Vane pick-off. Either AC or DC torquers can be provided. Two additional floated rate integrating gyros, one with a 2.5 x 10^6 gm. cm.²/sec. wheel and the second with a 12.5 x 10^6 gm. cm.²/sec. wheel are available. Hermetic sealing provides resistance to extreme environmental conditions.

—Send for Technical Data Sheets

KEARFOTT COMPONENTS INCLUDE:

Gyros, Servo Motors, Synchros, Servo and Magnetic Amplifiers, Tachometer Generators, Hermetic Rotary Seals, Aircraft Navigational Systems, and other high accuracy mechanical, electrical and electronic components. Send for bulletin giving data of components of interest to you.

ENGINEERS:

Many opportunities in the above fields are open. Please write for details today.

Kearfott

A SUBSIDIARY OF GENERAL PRECISION EQUIPMENT CORPORATION

KEARFOTT COMPANY, INC., LITTLE FALLS, N. J.

Sales and Engineering Offices: 1378 Main Avenue, Clifton, N. J.
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West Coast Office: 253 N. Vinedo Avenue, Pasadena, Calif.

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(*Continued from page 224*)

Samuel Cline, Orville Timms, and Raymond Usilton.

This group is now three years old and has grown to represent more than 100 South Jersey industries in its membership. Past presidents are F. R. McCleod and Thomas V. McCurdy.

R. I. Ass'n Annual Meeting

The Wannamoisett Country Club was the scene of the 1955 Annual Meeting of the Rhode Island Purchasing Agents Association on May 24. The nominating committee composed of Walter Barney, William Hunt and William O'Brien presented the following slate of officers to be voted upon: Morris Martin, national director; George Smith, president; Walter Maher, first vice president; William A. Whitfield, second vice president; and Arnot Hirst, secretary-treasurer.

Directors for the coming year include James Birmingham, Tom Fecteau, J. Joseph Fogarty, Bill Heisler, Joseph Navas, and Charles G. Voye.

Following elections, there was a showing of a travel movie provided by American Airlines. Also, new member John DiBiase of the State of Rhode Island was welcomed to the group.

Arthur Melka Selected to Head N. A. P. A. District 1

A former president of the Purchasing Agents Association of Northern California, Arthur J. Melka is the newly elected vice president of N. A. P. A. District 1. Mr. Melka is associated with the Hydraulic Dredging Corporation of Oakland, Calif. who do construction jobs all over the world.

Additional Ass'n News on Page 254

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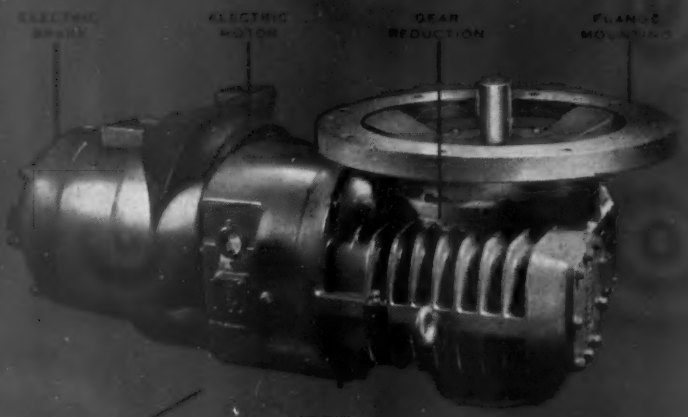


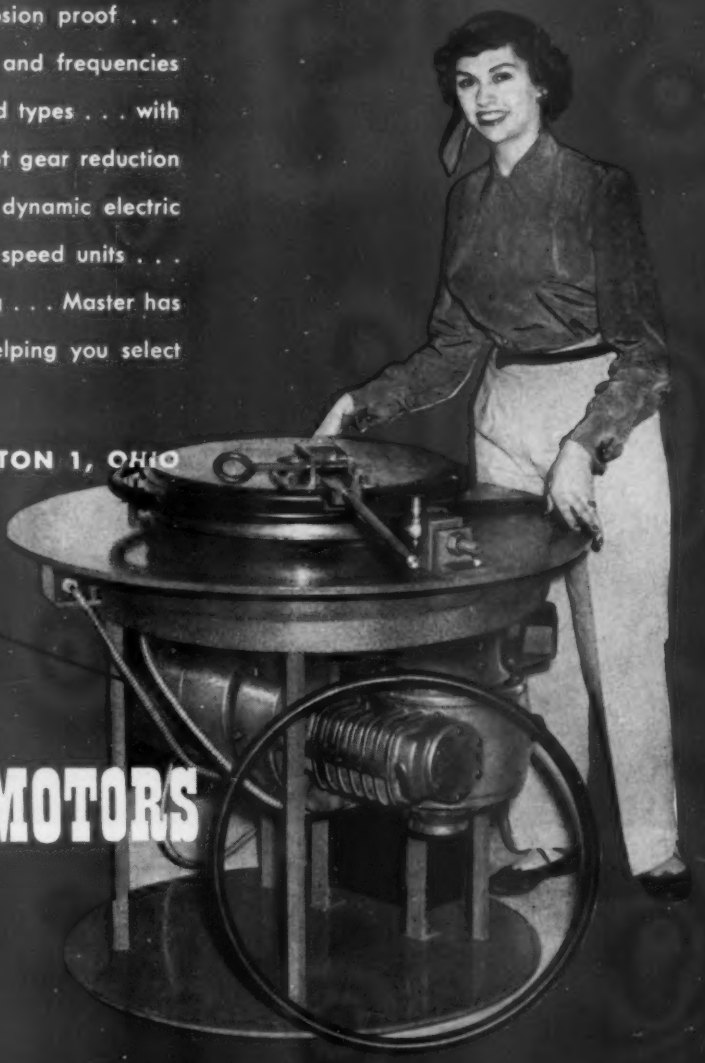
You can't beat the combination of the RIGHT horsepower, the RIGHT shaft speed, the RIGHT features all in one compact power unit that you can use RIGHT where you want it. It's the best way and the easiest way to select your power drives because you purchase one unit, handle one unit in your receiving, production, or maintenance departments . . . set one unit in place and you're ready to go.

Master Motors, available in thousands and thousands of types and ratings (1/8 to 400 HP) give you the widest selection of electric motor drives in the nation.

Open, enclosed, splash proof, fan-cooled, explosion proof . . . horizontal or vertical . . . for all phases, voltages and frequencies . . . in single speed, multi-speed and variable speed types . . . with flanges or other special features . . . with 5 types ot gear reduction up to 432 to 1 ratio . . . with either magnetic or dynamic electric brakes . . . with mechanical or electronic variable speed units . . . with fluid-drives . . . and for every type of mounting . . . Master has them all and so can be completely impartial in helping you select the one best motor drive for YOU.

THE MASTER ELECTRIC COMPANY • DAYTON 1, OHIO

make it easy for yourself



MASTER ELECTRIC MOTORS

Personalities IN THE NEWS

Flight Service for PAs A New Selling Tool

AMERICAN industry now operates a fleet of nearly 1000 airplanes. Purchasing executives in hundreds of companies have found the company-operated plane invaluable for expediting, quick visits to supplier factories, emergency shipments, etc. With competition steadily getting keener, it is not surprising that vendors use their planes to fly in busy purchasing agents from distant cities.

One company that has been quite successful in using a plane as a sales tool is Empire Steel Castings, Inc. of Reading, Pa. The company feels that if potential customers can be brought in for a first-hand look at its facilities, there will be a better chance of purchase orders flowing forth.

The investment in a Navion 260 has apparently been profitable. Since the flight service was started a year ago, the company has made progress in developing additional business in such relatively distant states as Florida, the Carolinas, Missouri, Texas, and Oklahoma. The company's salesman-pilot, William Firstin, estimates that at least two customers or potential customers have been carried on each flight.

The plane has also been invaluable in providing emergency freight service for customers. On one trip, it carried over 700 lbs. of castings packed in 100 lb. bags distributed throughout the plane. As a result, delivery was made on time for urgent work the customer was doing for the AEC.

A. F. Carioto, plant manager, and Emerson Maust, Jr., purchasing executive of Taylor-Wilson Manufacturing Co., recently used Empire's flight service to visit the foundry and discuss mutual problems. Standing left to right are: Mr. Carioto, Mr. Maust, and R. L. Tate, Empire's Pittsburgh representative. On the wing is William Firstin, pilot-salesman for Empire Steel Castings.

Howard C. Powell has been made a senior buyer for Patushin Aviation Corp., Los Angeles. Prior to joining Patushin, Mr. Powell was in the Purchasing Department of Pacific Airmotive Corp. for nearly seven years.

The appointment of **H. C. Chobanian** as assistant purchasing agent, tractor products, has been announced by A. D. Foote, purchasing agent for the West Allis Works of Allis-Chalmers Mfg. Co., Milwaukee. Mr. Chobanian had been assistant supervisor of the purchasing division's expediting section, where he is succeeded by **A. J. Steinbach.**

Walter A. Smith has been appointed director of purchasing for Servel, Inc., Evansville, Ind.

Richard H. Pearse, Sr., formerly purchasing agent for The Trane Co., La-Crosse, Wis., has been elected a vice president of the company.

(*Please turn to page* 232)

behind Riegel work glove quality!

Every manufacturing step in the production of Riegel gloves, from raw material to finished product, is controlled in our *three modern plants.* Our Trion Division weaves the fabric that our Greenville Division makes into a complete line of canton flannel, jersey, "Plastic-Dot" and plastic-coated gloves. Our Brundidge Division is devoted exclusively to producing the finest in leather work gloves. Our five local warehouses stock our gloves for fast delivery to all points. That's why Riegel gloves are tops in comfort—economy—and long wear, and that's why you get more for your money and your customers get more for theirs . . . with Riegel work gloves.

RIEGEL TEXTILE CORPORATION • 260 Madison Avenue • New York 16, N. Y.

BOSTON • CHARLOTTE • CHICAGO • DALLAS • LOS ANGELES • NEW YORK

For More Information Circle No. 261 on Inquiry Card—Page 17

LIFE STEPS UP AT 40!

1915 - 1955
FORTY DE-STA-CO QUALITY STAMPINGS YEARS

Sure we've been making stampings for 40 years! . . . But we're going *up* the hill faster than ever!

Expanded facilities! . . . Newer equipment! . . . Wider diversification! . . . Even more customers—and from every major industry!

The mere fact that we're the nation's best-known job stamping manufacturer . . . shows how we've progressed.

Now . . . as our life *steps up* at 40 . . . would be a good time to let us do a bang-up job for you, too!

DETROIT STAMPING COMPANY
DE-STA-CO
608 Midland Ave., Detroit 3, Mich.
America's Best-Known Job Stamping Manufacturer

For More Information Circle No. 262 on Inquiry Card—Page 17

Joseph K. Decker, who went to work for AC Spark Plug Division of General Motors in 1938 as a student engineer, has been named director of purchases. He succeeds Leon R. Steffen, who has been with AC since 1919.

Paul A. Turner, assistant buyer for the San Jose, Calif., Research and Development Laboratory of IBM, has been named manager of purchasing and accounting.

Frank White, assistant plant purchasing agent at the Fulton, N. Y., plant of Armstrong Cork Co., has been transferred to the General Purchasing Department in Lancaster, Pa. He joined Armstrong's purchasing department in 1947, and has been replaced at Fulton by **Dave Meaney.**

The appointment of **Frederic W. Thomas** as director of purchases has been announced by Vanadium Corp. of America. Mr. Thomas was formerly

F. W. Thomas

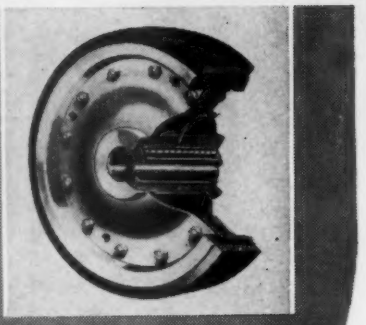
purchasing director for Joy Mfg. Co., prior to which he was general manager of purchases for Worthington Corp.

The new purchasing agent for the Link-Belt Co. plant in Chicago is **Andrew K. Kolar.** He succeeds Henry M. Coen, who has retired.

Dale H. Hood is now general purchasing agent for the G. S. Suppiger Co., Chicago. He joined the firm in 1951 as a member of the purchasing department.

Kenneth E. Phillips, formerly purchasing agent for Rola Co., Inc., Cleveland, is now vice president and director of purchases.

The new purchasing agent for The Billings and Spencer Co., Hartford, Conn., is **Omer F. Roy, Jr.** Mr. Roy has been with Billings since 1945. He was in charge of the firm's Steel Control Division and, in 1951, was appointed assistant purchasing agent for the company.



For Savings Specify

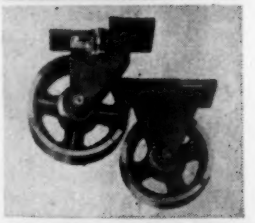
DARNELL
Casters & Wheels

1. LONGER EQUIPMENT LIFE
2. GREATER FLOOR PROTECTION
3. EASY EQUIPMENT MOVABILITY

. . . OVER 4000 TYPES of CASTERS & WHEELS

There is a type of Darnell Caster or Wheel for every kind of use and floor. Made for light, medium and heavy-duty service, you are sure to find in the Darnell line the exact caster or wheel to meet your individual requirements.

A TYPE AND SIZE FOR EVERY PURPOSE



Write for Free Darnell Manual

DARNELL CORPORATION, LTD.
DOWNEY (LOS ANGELES COUNTY) CALIFORNIA
60 WALKER STREET, NEW YORK 13, NEW YORK
36 NORTH CLINTON STREET, CHICAGO 6, ILLINOIS

For More Information Circle No. 263 on Inquiry Card—Page 17

What size is a quality fastener?

Here are two ELASTIC STOP® nuts.
Each has the familiar red locking collar. Each is self-locking, vibration-proof and can be reused many times. Each is a fast, readily assembled one-piece unit . . . will maintain accurate adjustment anywhere on a bolt. Each will afford positive protection against thread corrosion . . . prevent liquid seepage along bolts. Each is manufactured in quantity. Each is exactly controlled as to quality of raw material, finished dimensions, class of thread fit, seat squareness and finish. Each has a record for precision and uniformly high performance that is unmatched.

But . . . one measures 1/10 inch across the flats; the other, 4 inches. Between these two, there are more than 530 different hex nuts in the ESNA line. They are the result of variations in height, material, finish and size.

Look to ESNA for the top quality self-locking fastener that fits your need best.

ELASTIC STOP NUT CORPORATION OF AMERICA

Elastic Stop Nut Corporation of America
Dept. N58-715 2330 Vauxhall Road, Union, N. J.
Please send the following free fastening information:

☐ ELASTIC STOP nut bulletin ☐ Here is a drawing of our product. What self-locking fastener would you suggest?

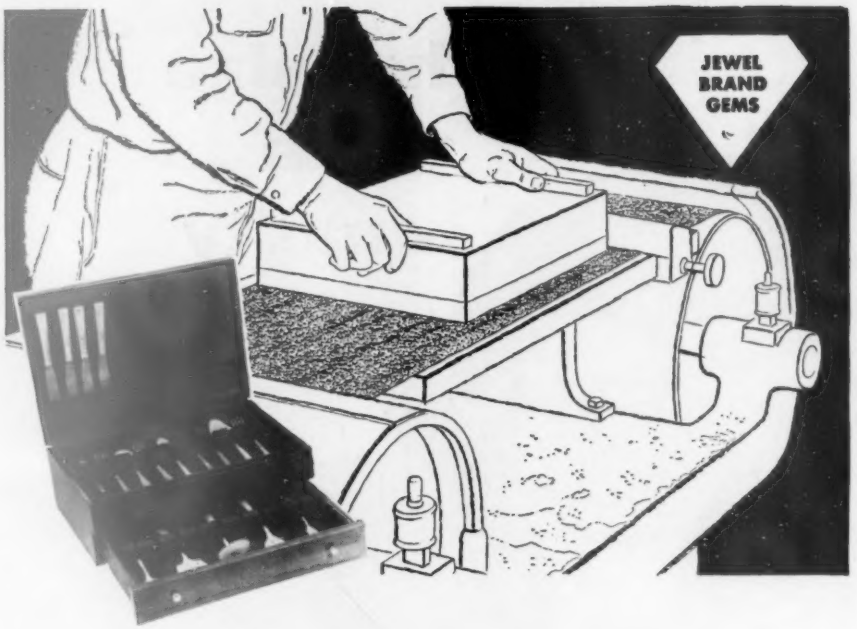
Name_____ Title_____

Firm_____

Street_____

City_____ Zone_____ State_____

For More Information Circle No. 264 on Inquiry Card—Page 17



Finishing formula for famous Eureka Silverware Chests

Finishing in the "white" at the Eureka Manufacturing Company, Taunton, Massachusetts, is accomplished with the aid of Jewel Brand Abrasive Belts and other Jewel Brand Products. Results of this process in bringing out the beauty of the natural grain and fine texture of the wood are credited in no small degree to the superior advantages of Jewel Brand Abrasives. Eureka found this formula effective years ago and has stayed with it.

If your company is exacting about finishing results or interested in lowering finishing costs, try Jewel Brand Coated Abrasives. See why this line of Abrasive Products has earned a reputation among cost-wise manufacturers for longer wear plus faster, cleaner cutting. Call your Jewel Brand Abrasive Engineer or Industrial Distributor today, or write us direct. Abrasive Products, Inc., 523 Pearl Street, South Braintree 85, Massachusetts.

A Full Line of Coated Abrasives

Jewel Brand Abrasives include **Jewelox**, aluminum oxide on cloth; **Jewelite**, silicon carbide on cloth and paper; **Jewel Garnet**, a natural mineral prepared by an exclusive method; **New Process**, an aluminum oxide abrasive paper, cloth and combination; **Jewel Emery Cloth**; **Jewel Flint Paper**; and **Specialties**. These products conform with the recommendation of the Division of Simplified Practice of the United States Dept. of Commerce.

Abrasive Products, Inc.

SOUTH BRAINTREE 85 MASSACHUSETTS · MAKERS OF JEWEL COATED ABRASIVES

For More Information Circle No. 265 on Inquiry Card—Page 17

William E. Smith has been elected vice president in charge of purchasing for the Mitchell Mfg. Co., Chicago. Mr. Smith, who has been with Mitchell since 1946 as director of purchasing, will supervise all purchasing activities

W. E. Smith

for the company. Prior to joining Mitchell, he was director of purchasing for Massey-Harris Co., Racine, Wis. Before that, he was a senior buyer for Commonwealth Edison in Chicago. He is a member of the Purchasing Agents Association of Chicago.

Michael Natoski has been appointed purchasing agent of the Autoyre Co.,

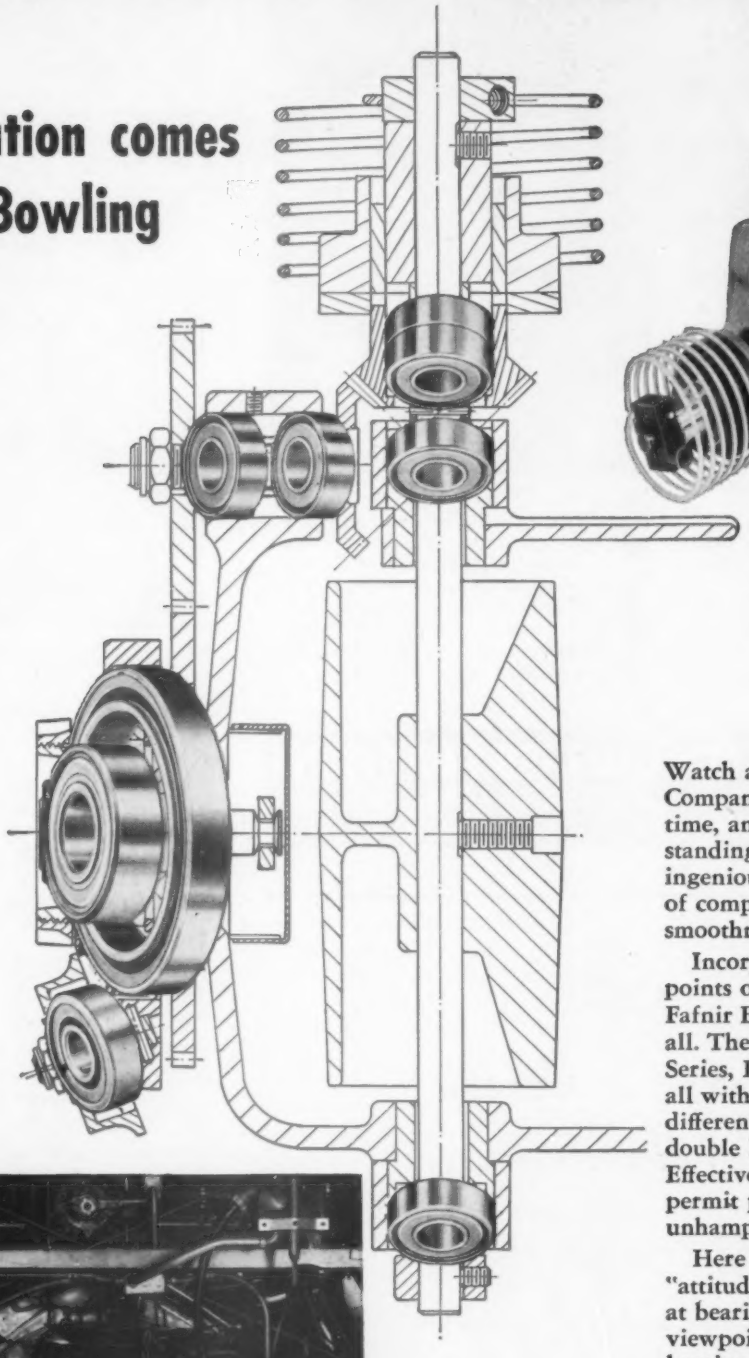
M. Natoski

Oakville, Conn. Until his recent promotion, Mr. Natoski had been with the sales division of Autoyre.

Winthrop E. Prescott has been named to succeed Ralph S. Howland as director of purchasing for The Kendall Co., Boston. Mr. Prescott had been assistant director of purchasing under the retiring Mr. Howland. Mr. Prescott joined Kendall in 1946 as purchasing agent for its Cotton Mills Division in Charlotte, N. C. He served in that capacity up to 1954. He served as president and national director of the Carolinas-Virginia Purchasing Agents Association in 1953 and 1954. He is a member of the New England Purchasing Agents Association and is currently serving on the committee on intra-company development of N. A. P. A.

Turning Points to more Efficient "Pin Boys"!

Automation comes to Bowling

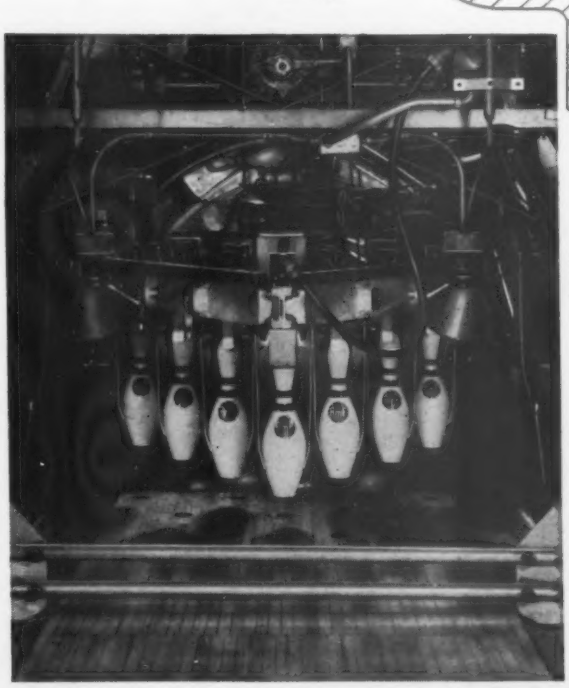


Section of Pin Distributor Drive Head Assembly equipped with six Fafnir Extra Small Series Double-Shielded Ball Bearings including a duplex arrangement plus a 200 Series Plya-Seal Bearing located in housing within an Aircraft Type Bearing . . . also another 200 Series Bearing with Plya-Seals.

Watch an American Machine & Foundry Company Pinspotter in operation sometime, and you'll agree that it's an outstanding example of automation. This ingenious machine performs a multiplicity of complicated operations with amazing smoothness and dependability.

Incorporated in many of the turning points of the Automatic Pinspotter are Fafnir Ball Bearings . . . forty of them in all. They include several sizes of the 200 Series, Inch Type, and Extra Small Series, all with double grease shields . . . also three different Aircraft Type Ball Bearings with double Plya-Seals and a Flangette. Effectively placed, these ball bearings permit precise coordination of motion unhampered by friction.

Here is another example of the Fafnir "attitude and aptitude" . . . a way of looking at bearing problems from the designer's viewpoint, plus coming up with the right bearing to fit the need. Automation problems and solutions are part of Fafnir's industry-wide experience. If you need the advantages of such experience, let Fafnir help you. The Fafnir Bearing Company, New Britain, Conn.



AMF Automatic Pinspotter is shown in process of lowering pins.

FAFNIR

BALL BEARINGS

MOST COMPLETE LINE IN AMERICA

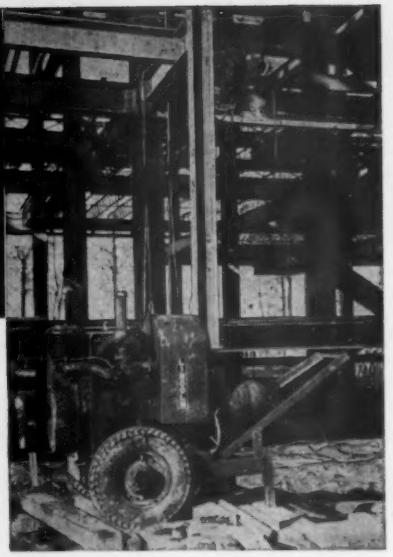
For More Information Circle No. 266 on Inquiry Card—Page 17

for Equipment that has to work in Tight Spots . . . . . *Specify*

WISCONSIN

HEAVY-DUTY

Air-Cooled **ENGINE**



The extremely compact design and relatively light weight of Wisconsin Heavy-Duty Air-Cooled Engines adapt them ideally for equipment that has to work in tight places . . . as well as for all types of service requiring heavy-duty power performance. Wisconsin features include:

Tapered roller bearings at BOTH ends of the crankshaft; an easily accessible, rotary type, high tension OUTSIDE Magneto, equipped with Impulse Coupling for easy starting at low cranking speed; pump circulated splash lubrication on smaller models and geared oil pump delivering an individual oil stream to each rod on multi-cylinder models, plus efficient AIR-COOLING at temperatures up to 140° F. In addition, Wisconsin Engines have the inherent Lugging Power that *hangs on* and keeps the job moving through the shock-load pinches.

These are some of the reasons why it will pay you to specify "WISCONSIN ENGINES" for *your* equipment. Write for Bulletin S-164.

This Lincoln Portable welder, made by Lincoln Electric Co., Cleveland, O., is a typical example of Wisconsin Air-Cooled Engine Power that "fits the job and the machine". The 2-cylinder Wisconsin Air-Cooled Engine weighs only 205 lbs. and delivers 15 hp. at 3000 rpm.

WISCONSIN MOTOR CORPORATION

World's Largest Builders of Heavy-Duty Air-Cooled Engines

MILWAUKEE 46, WISCONSIN

For More Information Circle No. 267 on Inquiry Card—Page 17

Everyone recognizes this as a sign of summer...

And smart gear users know this CINTI is the sign of *good* gears made to *your* specifications.

May We Send You Our Brochure?

CINTI®

"Gears...Good Gears Only"

THE CINCINNATI GEAR CO. • CINCINNATI 27, OHIO

For More Information Circle No. 268 on Inquiry Card—Page 17

C. G. McGlynn has been promoted to purchasing agent of Aluminum Goods Mfg. Co., Manitowoc, Wis. **R. L. Franz** has been named assistant purchasing agent. Mr. McGlynn, who had been assistant to the late E. W. Hall, has had 34 years of experience with the company, 27 of which were in the Purchasing Department. He worked in the order, traffic, packing, research and

C. G. McGlynn

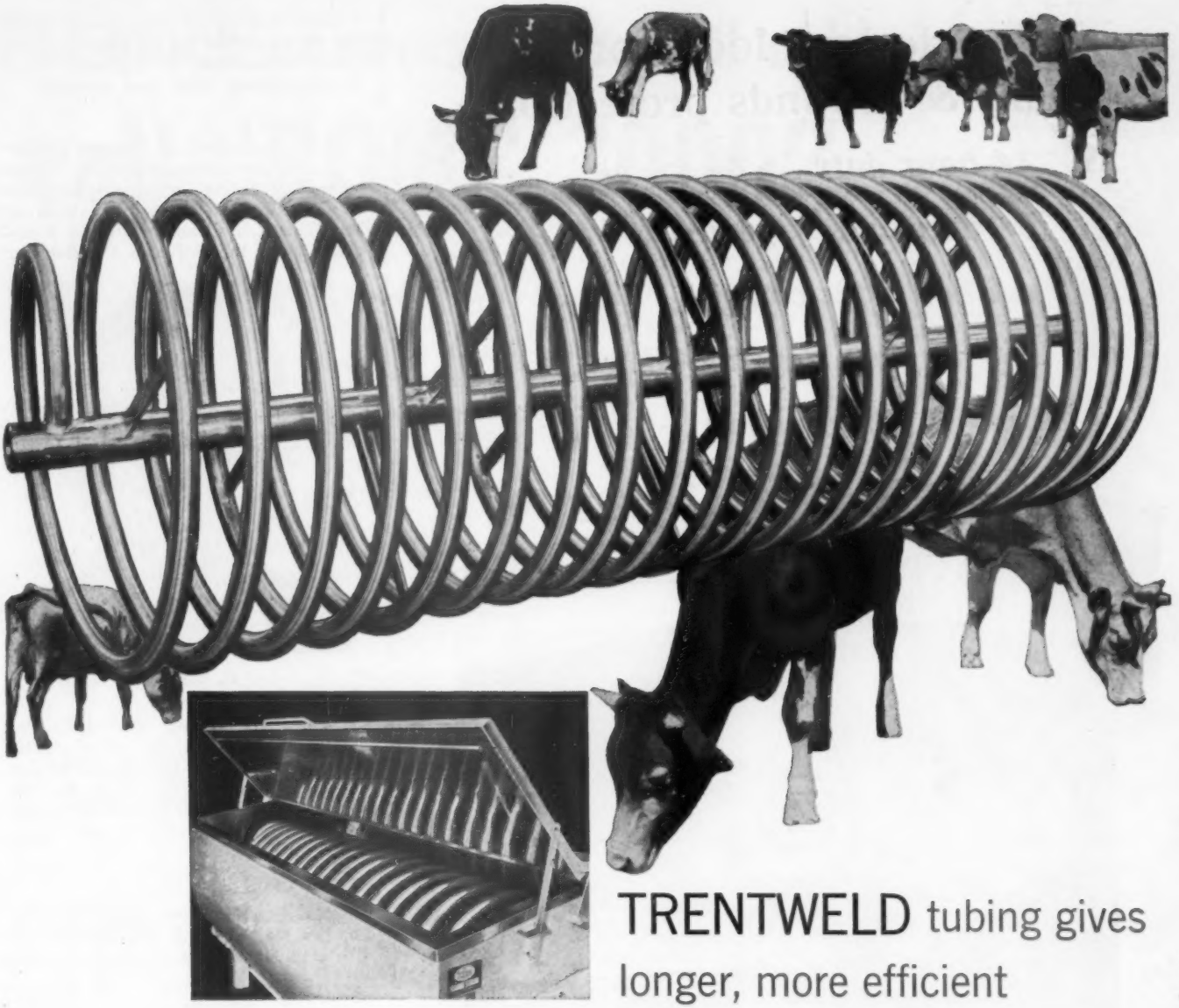
advertising departments before going into purchasing in 1928. He has been assistant manager of the department since 1949. Mr. Franz began his service in the syndicate sales department in 1947. He did priorities work in connection with the purchasing department during the Korean War and has been a buyer for the past 2½ years.

Edward J. Glavin has been named purchasing agent for Philadelphia, Pa.

Harold C. Tillinghast, director of purchases, has been elected vice president of the Northam Warren Corp., Stamford, Conn. He has been with the company for the past 15 years in various capacities.. For the past six years

H. C. Tillinghast

he has been director of purchases. He is a member of the Purchasing Agents Association of New York and of the Southern Connecticut Purchasing Association.



TRENTWELD tubing gives longer, more efficient operation in OVL-KOIL pasteurizer

The unique OVL-KOIL pasteurizer coil illustrated, is made of TRENTWELD stainless tubing. By forming the coil in an oval shape General Dairy Equipment, Inc., increased its length 10% without any increase in pasteurizer size or sacrifice of space between loops.

This extra coil area speeds up the pasteurization process, increases the efficiency of heating and cooling mediums, and gives greater heat transfer efficiency.

But this is just one of thousands of applications where TRENTWELD tubing has helped make products last longer and operate more efficiently. When you have an application calling for stainless or high-alloy tubing it will pay you to look to TRENTWELD. Trent offers the widest range of tubing sizes and finishes in the industry . . . in standard sizes from ⅛″ to 40″ O.D. – larger sizes on special order. And remember, you just can't buy better tubing than TRENTWELD.

TRENTWELD

STAINLESS STEEL TUBING

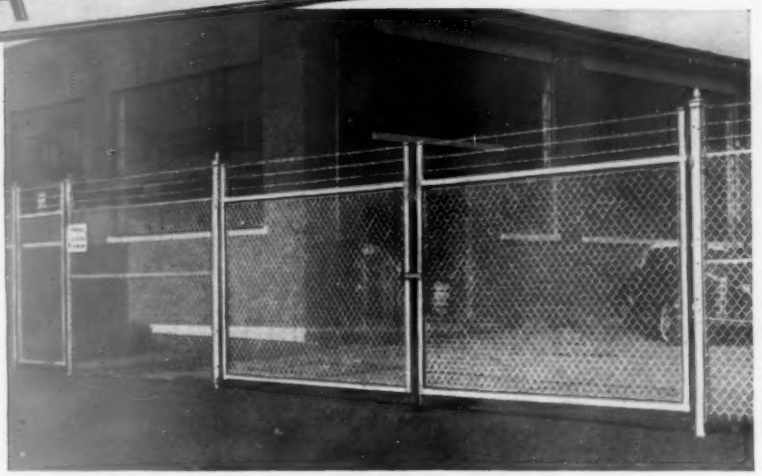
TRENT TUBE COMPANY, GENERAL SALES OFFICES, EAST TROY, WISCONSIN (Subsidiary of CRUCIBLE STEEL COMPANY OF AMERICA)

For More Information Circle No. 269 on Inquiry Card—Page 17

What do you look for in plant & grounds protection?

- ☑ *24-hour duty*
- ☑ *Permanent safeguard*
- ☑ *Aid to traffic control*
- ☑ *All-weather dependability*
- ☑ *Low-cost protection*

ANCHOR FENCE gives you everything!



Anchor Fence is the most *inexpensive* 24-hour watchman you can "hire"—it's low in initial cost and there's no expenditure for annual upkeep, because it needs none! Its exclusive deep-driven "anchors" keep this fence permanently erect, through all kinds of weather, in all types of soil conditions—truly permanent protection!

Insist on GENUINE Anchor Fence!

To be sure you're getting *all* the features described above, look for the orange-and-black nameplate that says "Anchor Fence"—that means you're getting the fence with the zinc coating applied *after* weaving, not before . . . the fence that gives you the best in all-round protection and traffic control. Call your local Anchor Fence office for a free estimate or write: ANCHOR POST PRODUCTS, INC., *Industrial Fence Division*, 6615 Eastern Avenue, Baltimore 24, Md.

Anchor Fence®

Division of ANCHOR POST PRODUCTS, Inc.

Plants in: Baltimore, Md.; Houston, Texas; and Los Angeles, Calif.
Branches and warehouses in all principal cities.

For More Information Circle No. 270 on Inquiry Card—Page 17

Frank Loftus has been named director of purchases for Wisconsin Motor Corp., Milwaukee. He succeeds Henry T. Thorkildsen, who died recently.

The appointment of **Chester Gainey** as acting purchasing agent in charge of the Purchasing Department of Eaton Mfg. Company's Reliance Division at Massilon, O., has been announced. Associated with the Reliance Division for

C. Gainey

25 years, Mr. Gainey started in the Printing Department in March, 1930. Two years later he transferred to the division's store room. Prior to his appointment as acting purchasing agent, he had served as assistant purchasing agent since 1940.

Rolled Steel Products Corp., Skokie, Ill., has elected **Ralph C. Herdrich** as vice president in charge of purchasing.

R. C. Herdrich

Mr. Herdrich previously served the steel distributing company as purchasing manager. He joined Rolled Steel in 1953.

H. L. Guthrie is now assistant director of purchases for U. S. Steel's American Bridge Division. Mr. Guthrie began with the National Tube Division in 1946 as a buyer. He became a senior buyer in 1950.

For quick answers to special cable problems

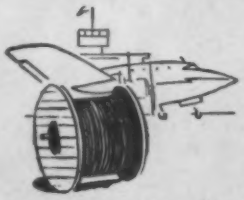
call "ROME 3000"

Generally, today's wire and cable requirements can be supplied right out of stock by Rome Cable distributors near you, or from a Rome Cable warehouse.

But, when you run into a problem that involves something special or when you need technical information quickly, simply pick up your telephone and call our nearest sales office or "Rome 3000." You will get prompt, helpful information directly from our key people.

Here are two ways in which buyers have been frequently helped by "calling Rome Cable."

Rush shipments of emergency orders by any carrier



Rome Cable is located at a point that makes possible fast rail, motor or air shipments. Its people are trained to act quickly in emergencies. In many instances, the seemingly impossible has been done to meet delivery schedules . . . often on the same day as the call.

Technical service

Time and again, a call to our nearest sales office or "Rome 3000" has produced engineering or product information which resulted in the solution of unusual wiring requirements . . . saving many dollars in lost time.

Calling "Rome 3000," either sales office or the factory, symbolizes a personalized service . . . a service resulting from direct and intimate contact between buyer and seller.

It Costs Less to Buy the Best

ROME CABLE
Corporation
ROME • NEW YORK
and
TORRANCE • CALIFORNIA

For More Information Circle No. 271 on Inquiry Card—Page 17

what's your small motor problem?

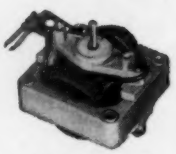
☐ Economy?
☐ Dependability?
☑ Quiet operation?

look for the answer in a famous

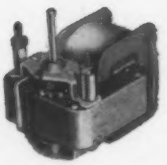
GI Smooth Power MOTOR

Depend on famous GI know-how to produce the right motor to fit your exact needs. Just name your problem. If one of the basic models listed below isn't readily adaptable to your product, GI's engineering department is at your service to help you design a special motor for any specific application. Our complete and modern facilities — backed by over 25 years' experience in solving the motor problems of large and small users throughout the world — are your guarantee of satisfaction. Call or write today for consultation without obligation.

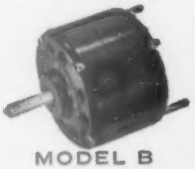
MODEL A
2-pole, shaded pole AC Induction Type



MODEL E
4-pole, shaded pole AC Induction Type



MODEL F
2-pole, shaded pole AC Induction Type



MODEL B
4-pole, 4-coil shaded pole AC Induction Type

MODEL D
4-pole, 4-coil shaded pole AC Induction Type

NOT SHOWN:

MODEL C — 2-pole, shaded pole AC Induction Type

MODEL O — 2-pole Capacitor Reversible Type, AC only (for 6, 12 or 24 volts)

Write for Complete Motor Catalog

THE GENERAL INDUSTRIES CO.

DEPARTMENT GP • ELYRIA, OHIO

For More Information Circle No. 272 on Inquiry Card—Page 17

The appointment of **Robert E. Michaels** to the position of assistant director of purchases has been announced

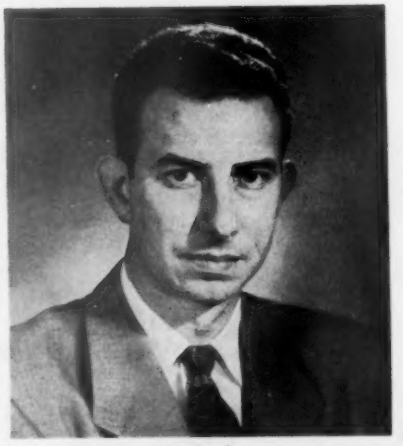
R. E. Michaels

by Burndy Engineering Co., Inc., Norwalk, Conn. He has been with Burndy for seven years, and has been purchasing engineer for the past three years.

Ralph E. Schroeder has been named purchasing agent for the Trenton plant of Monsanto Chemical Company's Inorganic Chemicals Division, according

O. F. Roy

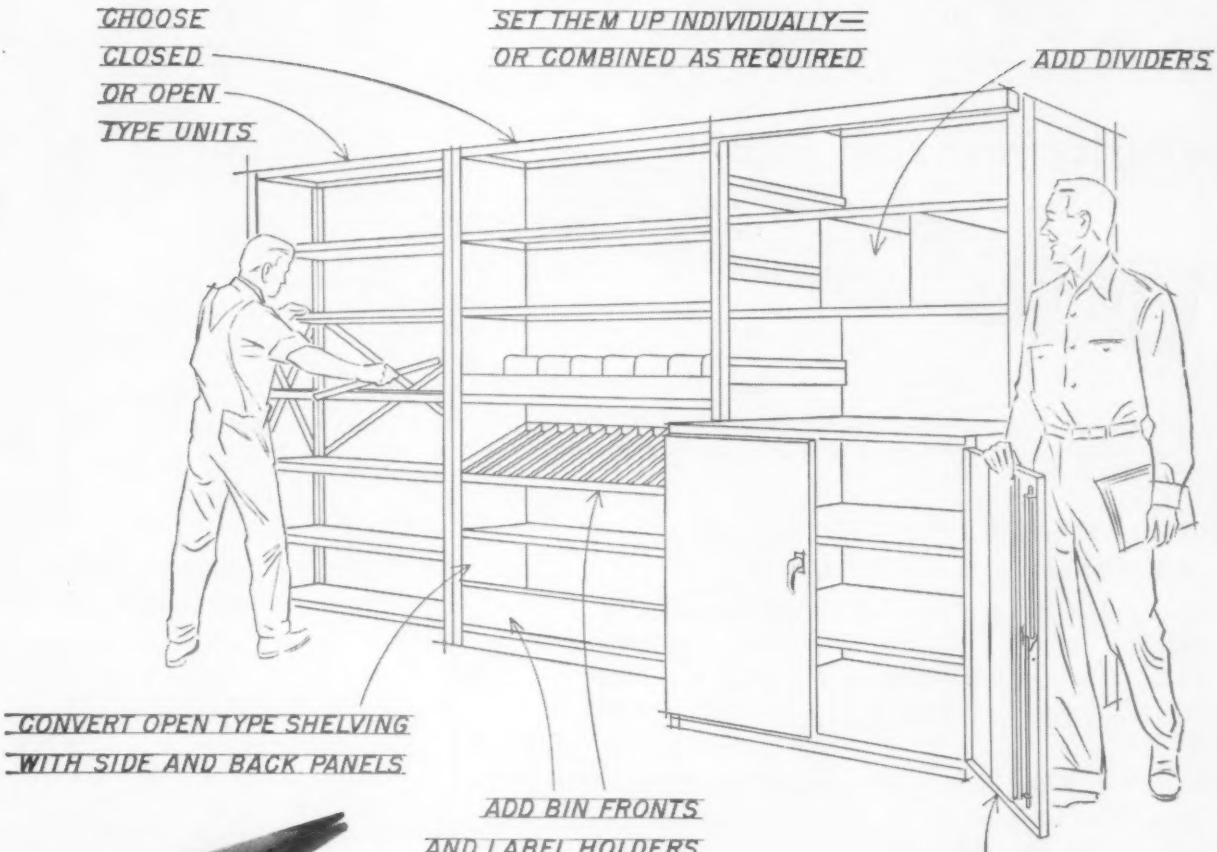
to an announcement by Howard J. Heffernan, director of purchasing and traffic for Monsanto. Mr. Schroeder joined Monsanto as an engineer at the Trenton installation in 1948.



C. Gwin

(*Please turn to page* 242)

HOW TO USE HALLOWELL ADJUSTABLE SHELVING IN PLANT MODERNIZATION


CHOOSE CLOSED OR OPEN TYPE UNITS
SET THEM UP INDIVIDUALLY— OR COMBINED AS REQUIRED
ADD DIVIDERS
CONVERT OPEN TYPE SHELVING WITH SIDE AND BACK PANELS
ADD BIN FRONTS AND LABEL HOLDERS AS NEEDED
ADD SWINGING OR SLIDING DOORS TO CLOSED TYPE UNITS

Baked on Enamel Finish · Sturdy Steel Construction · Interchangeable Parts Easy to Assemble · Stocked by Leading Shop Equipment Dealers · Send for Bulletin 2057 · Hallowell Shop Equipment Division Standard Pressed Steel Co., Jenkintown 31, Pa.

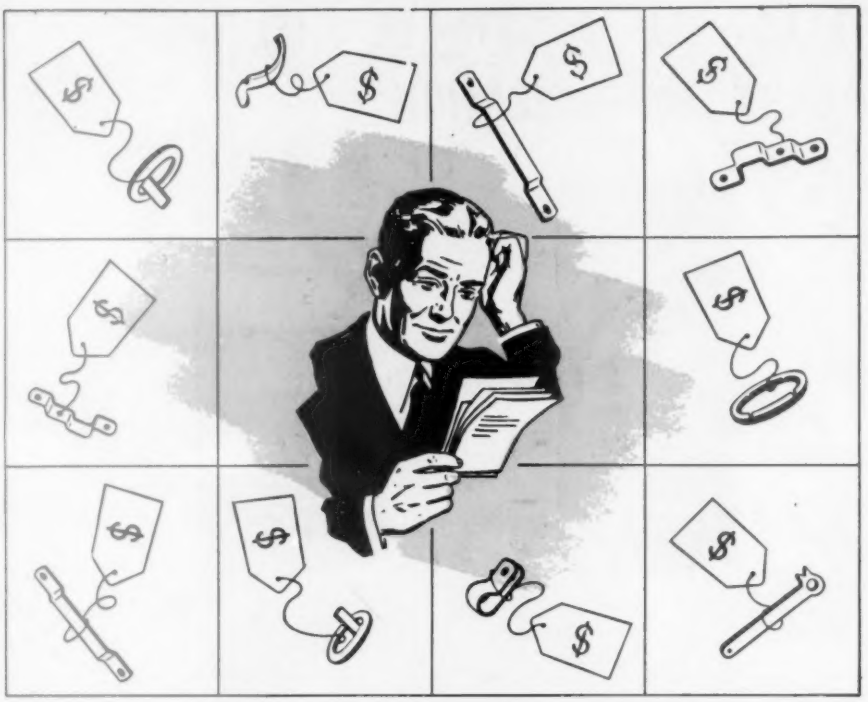
HALLOWELL SHOP EQUIPMENT DIVISION

SPS

JENKINTOWN PENNSYLVANIA

BENCHES (CABINET, WORK, UNIT) • STOOLS AND CHAIRS • SHOP DESKS • TOOL STANDS AND CABINETS • DRAWERS, DRAWER TIERS • STEEL CARTS • SHELVING

For More Information Circle No. 273 on Inquiry Card—Page 17



are you buying your stampings

at UP-TO-DATE PRICES?

Try us as a secondary or alternate source. You may be surprised at what our advanced methods can save you.

Costs, methods and techniques change rapidly in the stamping business, as in all business.

Through the constant development of new equipment, by producing our own multiple-use tooling, by perfecting unique time-saving procedures we're effecting great economies. Often, in fact, we can save our customers the cost of dies.

Frequently, of late, happy new customers have said to us, "We wish we'd known of your low prices before." Maybe this will be the case with you. Give us a try.

FOR FULL INFORMATION, **send for our free, 12-page booklet "Service in Stampings." Or send us a blue print for a quote. These are the days when savings count!**

LAMINATED SHIM COMPANY, INC.

STAMPINGS DIVISION

"ONE PIECE OR A MILLION"

2407 Union Street, Glenbrook, Conn.

For More Information Circle No. 274 on Inquiry Card—Page 17

(*Continued from page 240*)

Cooper Gwin has been appointed director of material for McCulloch Motors Corp., Los Angeles. Mr. Gwin joined the chain saw manufacturing company in 1948, as an assembler. A year and half later he was made foreman of assembly. He subsequently moved into the purchasing department, becoming assistant purchasing agent. In his new post, Mr. Gwin will have the responsibility of supervising the purchase of some $11,000,000 worth of materials annually.

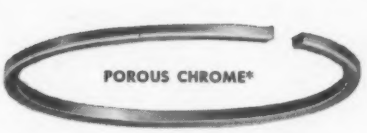
A. G. Paugh

The Vanadium Corp. of America, New York, has named **Arthur G. Paugh** as assistant director of purchases. Mr. Paugh will headquarter in the corporation's General Purchasing Department in New York. He had been purchasing agent for the National Meter Division of Rockwell Mfg. Co.

Titanium Metal and Mill Products Prices Reduced

A major price decrease for titanium metal has been announced by Titanium Metals Corporation of America. Effective April 1, titanium sponge metal has been reduced 55¢ per pound to $3.95 per pound, a single mark-down greater than the total of all previous price declines in the five-year industrial history of this strategic and critical metal. Prices for titanium mill products—sheet, strip, bar, billet, wire and plate—also have been lowered by $1.00 per pound to as much as $3.00 per pound.

Titanium Metals Corporation of America is jointly owned by the National Lead Company and Allegheny Ludlum Steel Corporation, and is the only integrated producer of metallic titanium. The company states that the new schedules of lower prices are being applied to orders and commitments already on its books.



Why these Koppers Piston Rings

give extra service

IT'S the materials used and the methods of manufacture that make for long piston ring service.

Koppers, with over 35 years of engineering and foundry experience, is highly qualified to combine the best of both metal and method. This experience assures you maximum service and satisfaction when you specify Koppers American Hammered Piston Rings.

Koppers engineering and research staff (which gave industry piston ring improvements such as K-Spun and Porous Chrome*) are also fully experienced in analyzing and solving problems. Koppers engineering service is ideally equipped to make recommendations for both original and replacement installations.

Similar leadership is evident in Koppers production facilities and manufacturing *"Know-how."* A large foundry equipped for both static and centrifugal castings, an up-to-date heat-treating plant, modern machine shops, an efficient testing laboratory and a complete piston ring research laboratory are Koppers physical assets. Its skilled manpower and production experts, with their widespread knowledge of the latest production techniques and practical experience in making industrial piston rings, make the products of engineering skill and manufacturing facilities an actuality . . . Koppers American Hammered Industrial Piston Rings.

American industry . . . aircraft, marine, commercial engine, railroad, petroleum, chemical . . . all benefit from this happy union. It gives them piston rings, made better to serve industry better. For help with your piston or sealing ring problems, consult Koppers first. Never any obligation. Write to: THE KOPPERS COMPANY, INC., *Piston Ring Dept., P-75.* Hamburg Street, Baltimore 3, Maryland. **Van der Horst Process*

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Industrial Piston Rings

METAL PRODUCTS DIVISION • KOPPERS COMPANY, INC., BALTIMORE 3, MD.
This Koppers Division also supplies industry with Fast's Couplings, Koppers Electrostatic Precipitators, Aeromaster Fans, Gas Apparatus.
Engineered Products Sold with *Service*

For More Information Circle No. 275 on Inquiry Card—Page 17

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NEW CASTLE, INDIANA

DIVISION OF THE
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TIRE & RUBBER CO.

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Industrial Developments

An expansion and modernization program now under way at the Fairmont, W. Va., glass works of the lamp division of the **Westinghouse Electric Corp., Pittsburgh**, is expected to cost about $250,000. When completed, the new facilities will make it possible for Westinghouse to manufacture several new types of glass and to expand production of types now being made at Fairmont. The program should be completed by late July.

International Minerals and Chemical Corp., Chicago, is building a nepheline syenite plant at Blue Mountain, near Havelock, Ontario. Costing about $1,500,000, it is scheduled for completion by late this year.

North & Judd Mfg. Co., New Britain, Conn., has purchased the major assets, including the entire plant, equipment and name, of Wilcox, Crittenden and Co., Inc., Middletown, Conn. Wilcox, Crittenden will operate as a division of North & Judd.

The Moore & White Co., manufacturers of custom-built machines for paper and paperboard mills, has moved to a new building at 330 East Hunting Park Ave., Philadelphia.

The National Radiator Co., Johnstown, Pa., and United States Radiator Corp., Detroit, merged on May 1st to form **National-U. S. Radiator Corp., Johnstown.**

An exclusive contract has been signed between **Colorado Fuel & Iron Corp., New York,** and **Bart Mfg. Corp., Belleville, N. J.,** for the nickel-plating of CF&I steel plate products. Under the contract, Bart will electro-clad steel plate, steel mill plate shapes and flanged and dished heads.

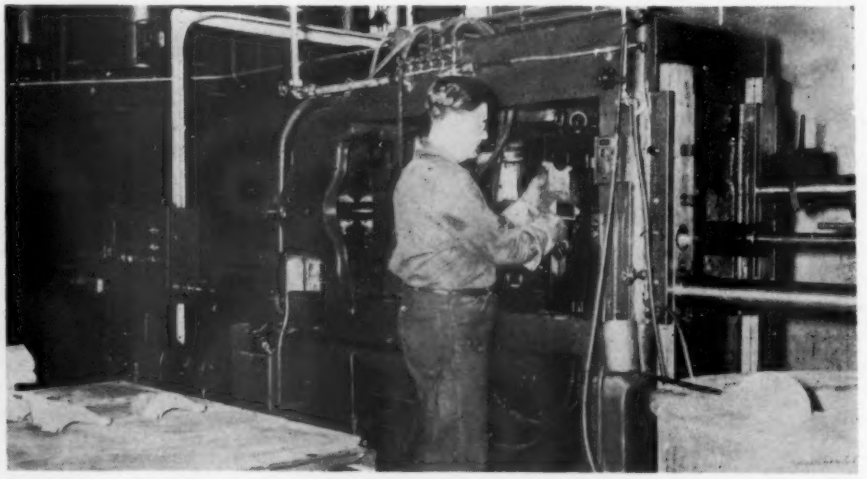
General Motors Corp., New York, has announced that they will spend $75,000,000 for facilities and forward development work at the Allison Division in Indianapolis, Ind., to meet the needs of the armed forces. Part of the program includes provision for new engineering, research and testing facilities to aid in the development of high-performance turbo-prop and turbo-jet aircraft.

Enlarged facilities for the headquarters operations of **The Rucker Co., Oakland, Calif.,** specialists in design, construction and installation of hydraulic and pneumatic power systems, have been formally opened.

Kaiser Engineers, division of Henry J. Kaiser Co., Oakland, Calif., is constructing an automobile manufacturing plant in Cordoba, Argentina, for Industrias Kaiser Argentina, S. A. The plant will manufacture Jeeps, passenger cars, station wagons and pickup trucks for the Argentine market.

The first phase of a multi-million dollar modernization program at its Springfield, Mass., plant has been completed, according to **Westinghouse Electric Corp., Pittsburgh.** Part of an $8,700,000 program, it has already more than doubled the facilities of the motor appliance section which manufactures fans, vacuum cleaners and food mixers.

A $750,000 expansion and modernization program is nearing completion at **The Producto Machine Co., Bridgeport, Conn.,** manufacturers of die sets, die accessories and machine tools. Part of the improvement is a mechanical charger which can be loaded from the outside materials yard with the proper amounts of pig iron, limestone and coke.



"ARMOR" FOR MAGNETS—This new 400-ton die casting machine, recently installed in the Edmore, Mich., permanent magnet plant of Carboloy Department of General Electric Company, casts aluminum sheaths on large magnets such as those used in radar installations. Magnet "insert" shown weighs about 10 times more than amount of aluminum used.

IS THERE A THIEF IN YOUR SHOP?

Not if you use <u>new</u>, disposable KIMWIPES!

Don't let expensive cloth and waste wipers rob you of profits. Replace them with Type 1300 KIMWIPES—the *modern* industrial wipers that give you four to ten times more wiper area per dollar!

Yes, and new Kimwipes 1300 are soft, strong and absorbent. A full 12" x 18" in size, they hold up to 8 times their own weight in liquids. They're non-abrasive, too. There's no holdover of metal chips or other infectious material that may cause dermatitis and loss of man hours. Type 1300 Kimwipes are absolutely clean to start with, and are disposed of after use. Ask your salesman for samples. And remember, you can also buy Type 900-S Kimwipes (optical wipers) and Type 900-L Kimwipes (regular wipers). Save money. Order today!

Kimberly Clark
INDUSTRIAL WIPERS
Kimwipes

Kimberly-Clark Corporation • Neenah, Wisconsin

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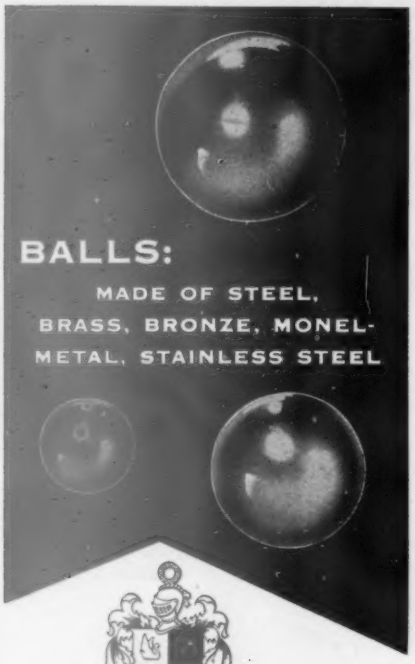

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The Aristocrat of Bearings

BALL BEARINGS:

AMERICA'S ONLY
BALL BEARING WITH
HONED RACEWAYS

HOOVER BALL
AND BEARING COMPANY
ANN ARBOR, MICHIGAN

For More Information Circle No. 278
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Columbia-Southern Chemical Corp., Pittsburgh, has announced plans for the construction of a multi-million dollar titanium tetrachloride producing plant at Natrium, W. Va. The new unit is located on the Ohio River site near the firm's chlorine, caustic soda plant. Construction started in May; partial production is scheduled for April, 1956. It is expected the unit will be in full production some three months later.

Plans for the construction of a new building to house the offices and plant of the Accurate Brass Corp., a wholly owned subsidiary of **The Bristol Brass Corp., Bristol, Conn.,** have been announced. Set for completion in October the one-story structure will contain nearly 60,000 sq. ft. of floor space.

The world's largest single unit for production of sulfuric acid has been brought into commercial operation at the East Chicago works of **Grasselli Chemicals Department, E. I. duPont de Nemours and Co., Inc., Wilmington, Del.** Under construction since last August, the new unit will supply makers of steel, petroleum products, insecticides, explosives, etc., in Illinois-Indiana-Wisconsin area.

A new plant for the manufacture of grinding wheels is being equipped and will be opened January 1, 1956, at Santa Clara, Calif., by **Norton Co., Worcester, Mass.** Renovating and equipping the plant will cost about $1,000,000. The 50,000 sq. ft. of factory and office space is the first Norton manufacturing facility on the West Coast.

Paisley Products, Inc., division of Morningstar, Nicol, Inc., New York, has purchased the inventory of the Scriptex Adhesive Products Co., Philadelphia, and has transferred the manufacturing operations to their plant in New York. The product line includes vegetable base pastes and glues, latex and polyvinyl resin cements and other industrial adhesives.

Mitchell - Bradford Chemical Co., Stratford, Conn., has completed a new plant to accommodate increased production, larger offices and research facilities.

90,000 sq. ft. of new shipping and storage space has been added to the facilities of **Rome Cable Corp., Rome, N. Y.**

National Container Corp., Long Island City, N. Y., has opened its new plant at Clyattville, Ga., for the manufacture of kraft pulp, board and paper. The $25,000,000 mill actually started limited production in late 1954.

An expanding European market has prompted **Colonial Broach Co., Detroit,** to license Maskin A/B Thule, Malmo, Sweden, to manufacture Colonial's broaching machines.

AMERICAN SAW
& MFG. COMPANY
SPRINGFIELD, MASS.

For More Information Circle No. 279
on Inquiry Card—Page 17

In this kit is the answer to all your conveyor belt needs!

THE LID'S OFF!

Now, for the first time, you can see in miniature a conveyor belt designed to your exact specifications... built right before your eyes... in only a few minutes of your time, on just a few inches of desk space. And this "U.S." Conveyor Belt Construction Kit can save your company countless hours, thousands of dollars of expense.

Completely new and exclusive with "U. S.", the Kit removes all uncertainty about the right belt for the specific job. Every type of materials handling problem, every kind of operating condition is taken into account. You see exactly how your conveyor belt must be constructed for highest output at lowest cost and long operating life.

Whether or not your present system has been giving you good service, you owe it to yourself to look into this unique and comprehensive analysis of your conveyor belt needs.

Absolutely free—no obligation whatsoever. It is strictly a service of United States Rubber Company. A "U. S." Sales Engineer will contact you in the near future. Or better still, why don't you call any one of the 27 "U.S." District Sales Offices and set up an appointment to see this remarkable new method of analyzing your conveyor belt requirements?

"U.S." Research perfects it..."U.S." Production builds it... U.S. Industry depends on it.

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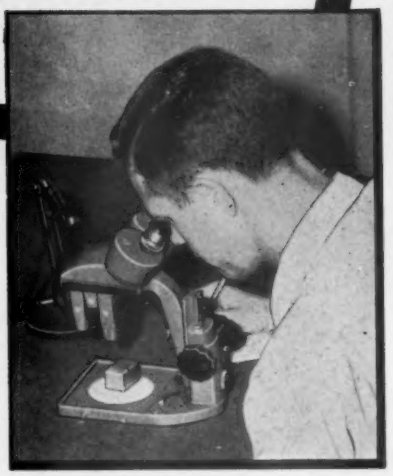
For More Information Circle No. 280 on Inquiry Card—Page 17

RESEARCH AT WORK FOR YOU

CHIEF SANDUSKY



FERROUS AND NON-FERROUS CENTRIFUGALLY CAST ROLLS, SLEEVES, TUBES, LINERS, CHUTES, RETORTS, RINGS, BUSHINGS, BEARINGS, ETC.

More and more concerns are discovering strong, uniform, closely grained ferrous and non-ferrous centrifugal castings are essential to a variety of their applications, particularly those requiring maximum strength and extreme resistance to heat, corrosion, and wear. Chief Sandusky continuous research is ever expanding the range of these uses.

This combination of versatility and highest quality results from constant research and testing, not only in our modern laboratories, but in co-operation with independent research organizations as well. Whether your specifications are standard or specially planned for the job, our extensive research facilities and vast in-the-foundry and in-the-field experience are available to help you choose the correct casting for your requirements.

Apart from rough and semi-machined, we supply centrifugal castings that are drilled, threaded, milled, bored, turned, or otherwise specially machined by our efficient, well-equipped shops.

Call or write Chief Sandusky, the leading source of research and field tested ferrous and non-ferrous centrifugal castings. ALWAYS SPECIFY CHIEF SANDUSKY.

C. M. Lovsted & Co., Seattle, Wash. • Tynes Bros., Birmingham, Ala. • Cordes Bros., San Francisco and Wilmington, Calif.

Chief SANDUSKY CENTRIFUGAL CASTINGS

FERROUS AND NON-FERROUS

SANDUSKY FOUNDRY AND MACHINE CO., Sandusky, Ohio

For More Information Circle No. 281 on Inquiry Card—Page 17

NEWS OF YOUR SUPPLIERS

The Van Groos Co., Sherman Oaks, Calif., has been named as a representative by **Shallcross Mfg. Co., Collingdale, Pa.** Van Groos will operate throughout **California, New Mexico** Arizona and Nevada.

Paul Andrews has been made a sales representative by **The Wood & Spencer Co., Cleveland.** His territory will be part of Cleveland as well as Elyria **and Lorain.**

V. Reynolds

Vince Reynolds has been made a sales representative in the Dallas office by **A-P Controls Corp., Milwaukee.** He will cover Texas, **Oklahoma, Louisiana** and Arizona.

The Atlas Valve Co., Newark, N. J., has named the Stanley M. Proctor Co., Cleveland, as an exclusive representative in the Ohio area.

Robert E. Amidon has been named a sales representative by the **Graton & Knight Co., Worcester, Mass.** He will cover Virginia, West Virginia and western Pennsylvania.

Three new appointments have been announced in the Houston district by **Graybar Electric Co., Inc., New York.** J. T. Kinney, formerly assistant district operating manager in New York, takes over as district operating manager in Houston. At the same time, it was announced that L. A. Peterson is now branch manager at Jackson, Miss., and A. N. Saxon is branch manager at Corpus Christi, Texas.

Reynolds Metals Co., Louisville, Ky., has elected three vice presidents. C. E. Coghill, treasurer of the company, is now vice president and treasurer. John Krey, assistant to the president, was also named a vice president. And, W. Monroe Wells, assistant vice president of operations, also became a vice president.

...see CHASE'S newest movie!

16mm Sound and Full Color!

24 minutes of exciting information for manufacturers of

- SCREW MACHINE PARTS
- WIRE PRODUCTS
- NON-FERROUS FORGINGS

"IN THE CHIPS" reveals how men and machines work together to give you easier-working, cost-reducing brass and other copper alloy rod and wire.

You see remarkable close-ups of modern screw machine operations—including incredibly fast and accurate turning, deep drilling, reaming and tapping. There are fantastic slow-motion sequences of almost-human machines that transform wire into finished products at lightning speed!

ARRANGE FOR A SHOWING!

Write on company letterhead to the Chase warehouse or sales office near you, or SEND THIS COUPON!

To: Chase Brass & Copper Co., Incorporated
Waterbury 20, Conn. Dept. Purc-755

Gentlemen:

_____ *Please send me more information on your 16 mm, full-color film, "In the Chips."*

_____ *I would like to arrange for a showing on or about* _____

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POSITION _____

FIRM _____

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CITY _____ STATE _____

Chase

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The Nation's Headquarters for Brass & Copper

Albany†	Chicago	Detroit	Los Angeles	New York	St. Louis
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Baltimore	Cleveland	Houston	Minneapolis	Pittsburgh	Seattle
Boston	Dallas	Indianapolis	Newark	Providence	Waterbury
Charlotte†	Denver	Kansas City, Mo.	New Orleans	Rochester†	(†sales office only)

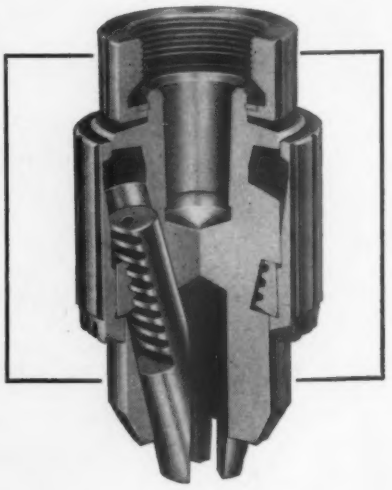
For More Information Circle No. 282 on Inquiry Card—Page 17

It **holds fast** *at both ends*

The threaded collar on this Jacobs Chuck provides a positive lock between chuck and drill press spindle. Here's a chuck that won't let go on either end, however you use it.

The locking grip on the spindle end is more than matched by a holding grip of tremendous power on the business end. And, like all Jacobs Plain Bearing Chucks, this one is capable of greater accuracy and longer precision service than any comparable chuck made today.

Jacobs Chucks for every tool and work holding need are as near as your industrial distributor. Call him for prompt, experienced service, or write The Jacobs Manufacturing Co., 1907 Jacobs Road, West Hartford, Conn. Ask for Catalog 100.



JACOBS AND YOUR LOCAL DISTRIBUTOR
are ready to deliver the chucks you need and the service you deserve.
first in chucks . . . first in service

Jacobs
CHUCKS
If it's a Jacobs–it holds

John A. Roebling's Sons Corp., Trenton, has appointed Charles E. Meluney, Jr., as Houston district sales manager for its Electrical Wire and Cable Division. He will cover most of Texas, as well as Oklahoma, Louisiana and Mississippi.

Allegheny Ludlum Steel Corp., Pittsburgh, has announced executive changes as a result of a major realignment of the company's sales division. C. B. Boyne is now director of customer service, a newly created post in the corporation. He had been assistant general manager of sales. Another new post, executive assistant to the vice president in charge of sales, has been filled by Roger S. Ahlbrandt. F. Price Norris, formerly manager of the Philadelphia sales office, has moved to Pittsburgh to the new post of director of stainless and specialty steel sales.

Brainard Steel Division of Sharon Steel Corp., Warren, O., has named Walter A. Garrett as sales manager

W. A. Garrett

of steel strapping. Mr. Garrett had been serving as eastern district manager.

Ampco Metal, Inc., Milwaukee, has announced some promotions and distributor appointments. James A. Arter is now vice president in charge of manufacturing for the company. J. P. Henry, formerly assistant general sales manager, is now general sales manager, and R. J. Severson, formerly manager of technical sales, takes on the duties of assistant general sales manager. The following were appointed Ampco distributors: The Giller Tool Supply Co., Inc., Dallas, Texas; Mississippi Foundry and Machine Co., Inc., Jackson, Miss.; R. B. Carolin Foundry & Machine Co., Detroit; Arizona Welding Equipment Co., Flagstaff; and Bushnell Machinery Co., Pittsburgh.

Bufnel Co., Ltd., Hollydale, Calif., engineers and steel fabricators, has named R. V. Davis as vice president in charge of sales, Steel Grating Products Division.

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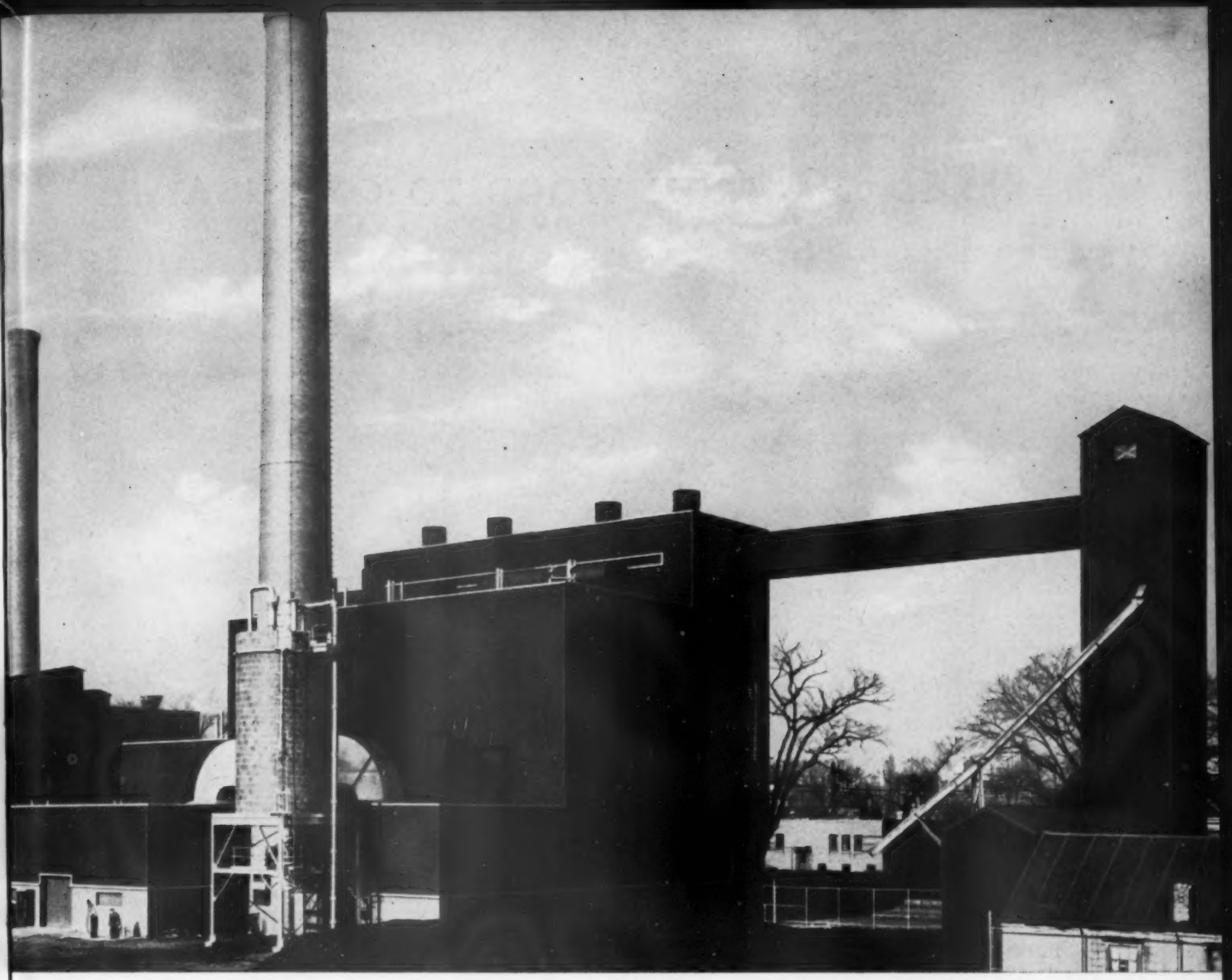


Syracuse U. burns coal the modern way for dependable steam supply

Over the past decade, there has been a growing demand on the steam plant at Syracuse University. Not only has the university itself expanded rapidly, but six hospitals on or adjacent to the campus depend on university facilities for steam. When the original steam plant proved inadequate (total output 190,000 lbs. per hr.), the university built a completely up-to-date unit to replace it.

The internal operation of this new plant is as modern as its panel and glass exterior. An automatic handling system delivers the coal from hopper to bunker to pulverizer to boiler. A pneumatic-type integral combustion control system operates the boilers automatically. A pneumatic disposal system removes fly ash and cinder ash automatically. Today Syracuse University is assured an adequate steam supply—capacity 300,000 lbs. per hr.—and a clean, economical operation in the process.

Investigate Your Fuel Costs

If you're planning to modernize your plant or build a new one—or if you are just interested in cutting fuel costs—find out how coal, burned the modern way, compares to other fuels. Why not talk to a consulting engineer or your nearest coal distributor? Their advice may save you thousands of dollars each year.

facts you should know about coal

Up-to-date coal burning equipment can give you 10% to 40% more steam per dollar.

Automatic coal and ash handling systems can result in a virtually labor-free plant.

Coal is the safest fuel to store and use. No dust or smoke problems when coal is burned with modern equipment.

In most industrial areas, bituminous coal is the lowest-cost fuel available.

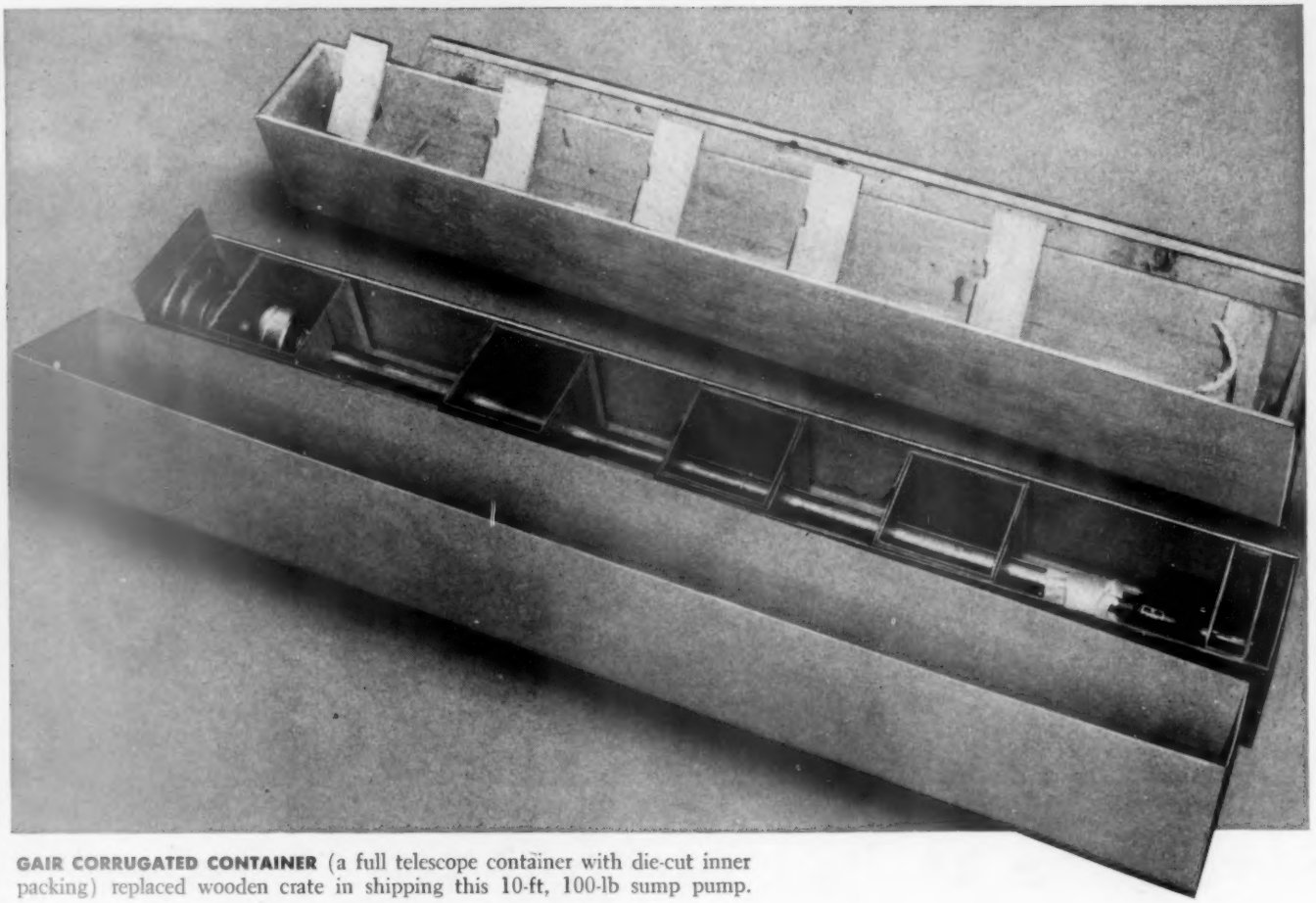
Between America's vast coal reserves and mechanized coal production methods, you can count on coal being plentiful and its price remaining stable.

For further information or additional case histories showing how other plants have saved money burning coal, write to the address below.

NATIONAL COAL ASSOCIATION
Southern Building, Washington 5, D.C.

Switching FROM WOOD TO CORRUGATED

SAVES PUMP FIRM $4.50 A SHIPPING CONTAINER



GAIR CORRUGATED CONTAINER (a full telescope container with die-cut inner packing) replaced wooden crate in shipping this 10-ft, 100-lb sump pump.

Production men at Detroit's Penberthy Injector Co. are wearing big smiles since they switched from wooden crates to Gair corrugated shipping containers.

Product involved was their ten-foot sump pump that tips the scales at more than 100 pounds. That's why Penberthy's shipping department wasn't sure at first that corrugated was strong enough for the job. Gair convinced them by a number of test shipments to various parts of the country — *no damage!*

Now one man packs thirteen complete containers an hour — it used to take two men that long to turn out nine to ten containers. This represents a savings in packing and materials of $4.50 per unit. Add the fact that the new container is 42 pounds lighter — three of them can be shipped for the price of two wooden crates — and you see why Penberthy has closed down its crating shop.

Interested in knowing what suggestions we might have for improving *your* packing and shipping program? Call your nearest Gair plant.

YOU'RE LIVING NEXT DOOR TO THE EXPERT

GAIR CONTAINER PLANTS: Atlanta, Ga. • Cambridge, Mass. • Cleveland, Ohio • Holyoke, Mass. • Jackson, Miss. • Los Angeles, Cal. • Martinsville, Va. • New Orleans, La. • No. Tonawanda, N. Y. • Philadelphia, Pa. • Plymouth, Mich. • Portland, Conn. • Richmond, Va. • Syracuse, N. Y. • Teterboro, N. J.

SINCE 1864

GAIR

SHIPPING CONTAINERS

FOLDING CARTONS • PAPERBOARD

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For More Information Circle No. 283 on Inquiry Card—Page 17

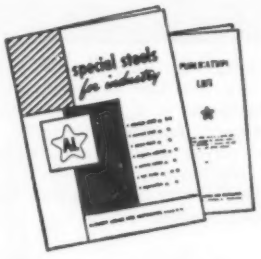
For More Information Circle No. 284 on Inquiry Card—Page 17

FIRST COST can be the LEAST COST if it's the LAST COST

First cost is never the whole story. Length of service and cost of upkeep are equally powerful factors in determining the lifetime cost . . . the *real* cost of an object.

Nor does it have to be something glamorous. Even such everyday things as kitchen garbage containers and work surfaces, mixing bowls and flour sifters, etc., are transformed when they're made of Allegheny Metal. They look better, clean easier, last many times longer. That's because *no other metal* is at once as hard and strong, as resistant to wear and corrosion, as stainless steel. Even where the use of Allegheny Metal results in higher first cost (and quite often it doesn't!) it is sure to cost far less in the long run.

Does that give *you* ideas about adding new sales appeal to your product? Or reducing maintenance, repair and depreciation costs in your equipment? If so, our engineers are ready to help you work them out. ***Allegheny Ludlum Steel Corporation, Oliver Bldg., Pittsburgh 22, Pa.***



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For These Publications

1. SPECIAL STEELS FOR INDUSTRY . . . 16 pages of essential data on the proper selection and application of principal AL special alloy products: stainless, tool and electrical steels and sintered carbides.

2. PUBLICATION LIST . . . a complete listing of all AL publications, both technical and non-technical (over 100 in all), with a handy order form for your convenience.

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Make it BETTER-and LONGER LASTING-with

Allegheny Metal

W&D 5399C

AL TIME-TESTED STAINLESS STEEL

Warehouse stocks carried by all Ryerson steel plants

For More Information Circle No. 285 on Inquiry Card—Page 17

VIBRATION CANNOT LOOSEN!

Patent Applied For

the NEW

Blue Devil LED-LOK SOCKET CAP SCREWS

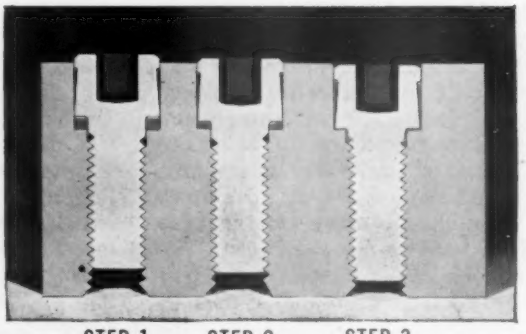
Now at last you can use socket screws that positively will not loosen under any vibration! The new BLUE DEVIL LED-LOK CAP SCREWS are the answer to this problem, and they're also air-, water-, gas- and oil-tight. They're easy to use and require no assembly changes or modifications. Available in same sizes as standards. Better get the facts on LED-LOK CAP SCREWS right away!

HOW LED-LOK SCREWS WORK
(Actual cutaway photo)

STEP 1—LED-LOK Screw drawn up to washer;

STEP 2—Washer has started to extrude into cavity formed by screw taper;

STEP 3—Screw is seated into final position; washer occupies cavity, locking in place and making tight seal.



STEP 1 STEP 2 STEP 3

WRITE TODAY on your letterhead for your sample LED-LOK Screws and testing block. No obligation!

SOCKET SCREWS EXCLUSIVELY

SAFETY SOCKET SCREW COMPANY
6502 AVONDALE AVENUE • CHICAGO 31, ILLINOIS
SOLD ONLY THROUGH AUTHORIZED INDUSTRIAL DISTRIBUTORS

For More Information Circle No. 286 on Inquiry Card—Page 17

Ass'n News

Seminar on Public Purchasing Held in Milwaukee

The City of Milwaukee Central Board of Purchasers presented a four day seminar on "Public Purchasing and Supply Management" in cooperation with the U. S. Foreign Operations Administration. 25 representatives from 9 Latin American countries attended. Topics taken up included organization of a purchasing department, inventory control, quality, standards and specifications, competitive bidding procedures, forms and their uses, city finance, salvage, reproduction of forms, and public relations. To round out the course and to permit delegates to see important operations-on-the-spot, trips were made to the Milwaukee City Testing Laboratory, the Municipal Warehouse and Petroleum Plant, and the City's Reproduction Division.

Pete Wight Chosen N. A. P. A. District 8 Vice President

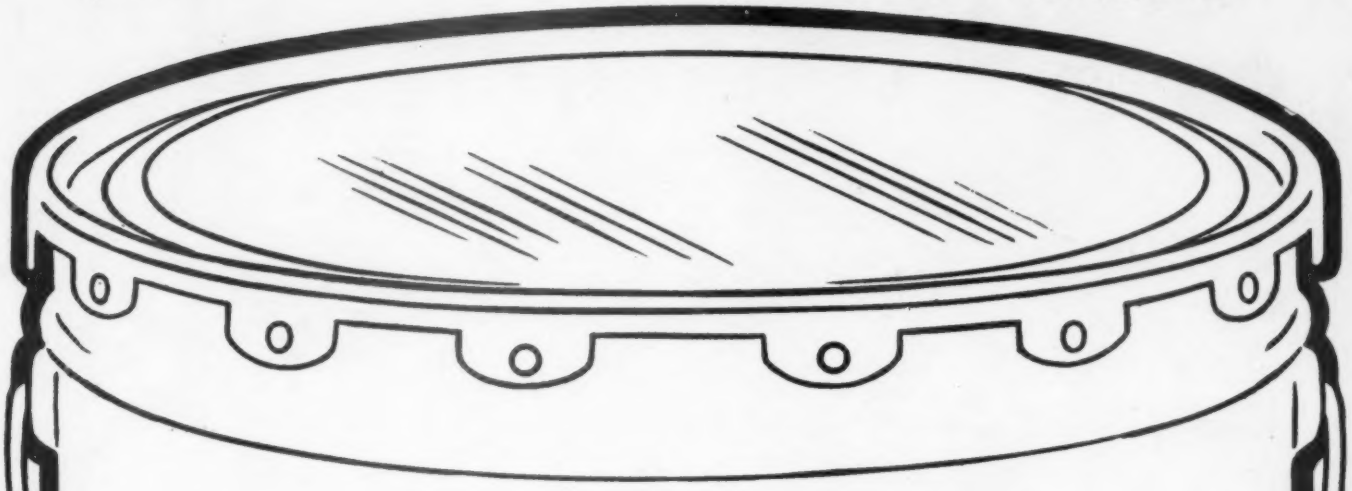
On June 1, Wilson B. (Pete) Wight began his term as vice president of N. A. P. A. District 8. Mr. Wight is a former president of the Purchasing Agents Association of Rochester and serves as assistant purchasing agent of the Bausch & Lomb Optical Co. He is a graduate of Syracuse University and the Harvard Business School.

Lancaster Club Elects Officers

At a special election meeting held on May 17 at Overlook Golf Course in Lancaster, Pa., William Lawton of the Armstrong Cork Co. was elected president of the Purchasing Agents Club of Lancaster for 1955-56. Other officers include: Hugh Johnson, DeWalt Inc., vice president; J. Donald Jones, Frank Ix & Sons, secretary; and Floyd E. Gort-

(*Please turn to page* 258)

Make friends with Continental's steel containers



Rust-proof re-usable
FLARING PAILS

Inside and out, Continental steel flaring pails are built to give your dry, powdered and viscous products the fullest measure of protection. Sales appeal, however, is just as much a part of these pails as sturdy construction. Brightly lithographed by Continental craftsmen, each container becomes part of a handsome package "family." And long after the original contents are gone, your name on these handy re-usable pails will help you sell not just one, but *all* the products in your line. Let us show you how Continental flaring pails can work for you. Call anytime.

Why not order "Tripletite" paint cans, "F" style and conventional cans when you order steel containers? We'll make up a "mixed" freight car to cut your costs on shipping, warehouse space and inventory.

A COMPLETE LINE—FIRST IN QUALITY

Durable, handsome Continental flaring pails available in 10 lb., 3½, 4, 5, and 6½ U. S. gallon sizes. 29-, 28-, or 26-gauge steel throughout. Bottom compound lined with 5 thickness strength for extra protection. Cover has deep gasket groove and full skirt to provide a sure seal. Beads near top, bottom or both for greater rigidity and strength. Covers specially designed to prevent sticking or jamming in storage. All pails nest snugly for economical shipping.

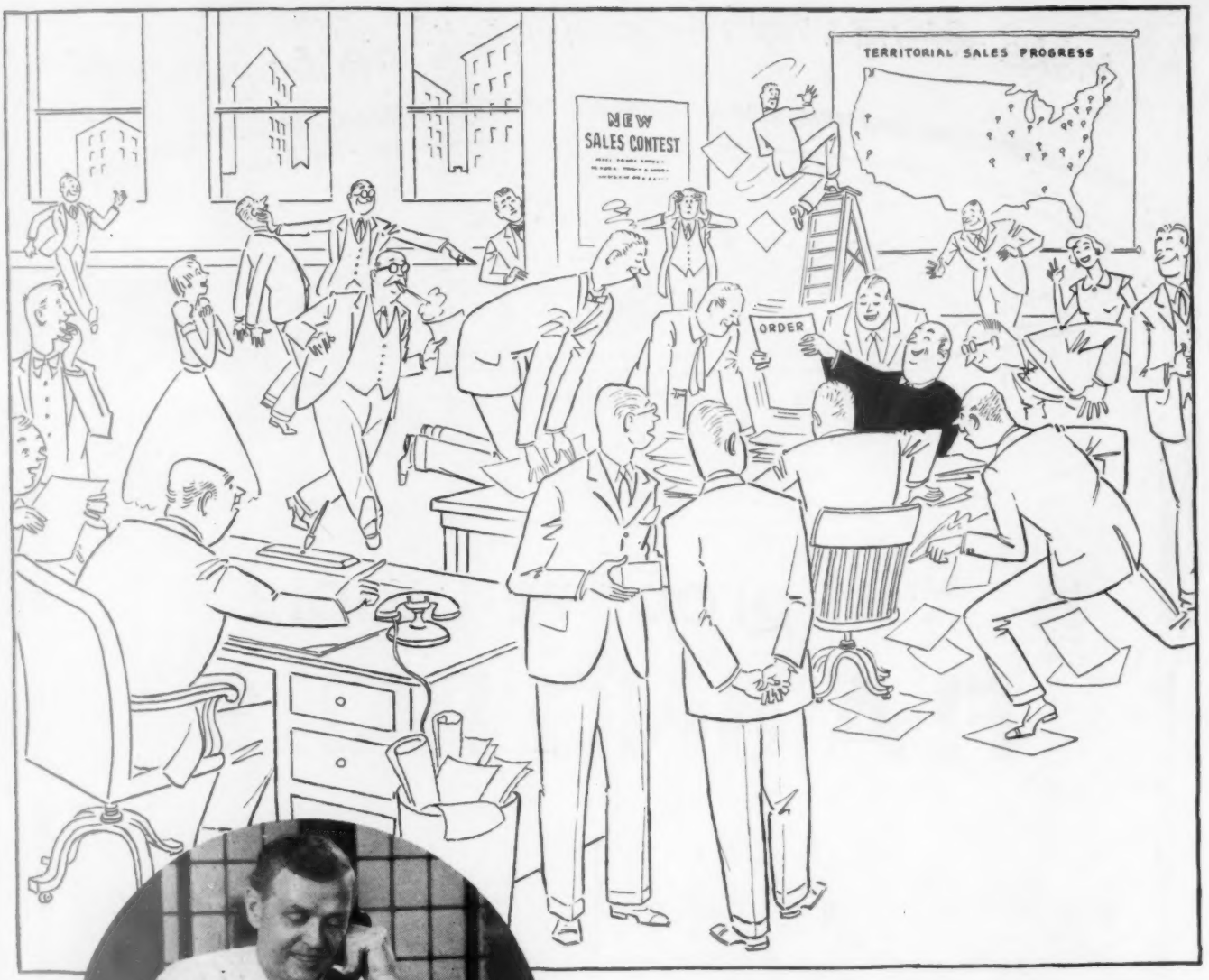
Continental makes a full line of closed head drums, lug cover pails and utility containers. Whatever your needs; Continental will supply the sizes and styles that fit your products best.

CONTINENTAL CAN COMPANY

Eastern Division: 100 E. 42nd St., New York 17
Central Division: 135 So. La Salle St., Chicago 3
Pacific Division: Russ Building, San Francisco 4

Our Fiftieth Year of Tailor-Made Packaging
TAILOR-MADE PACKAGE SERVICE

For More Information Circle No. 287 on Inquiry Card—Page 17



. . . on the other hand, there are times when 1 head is better than 10

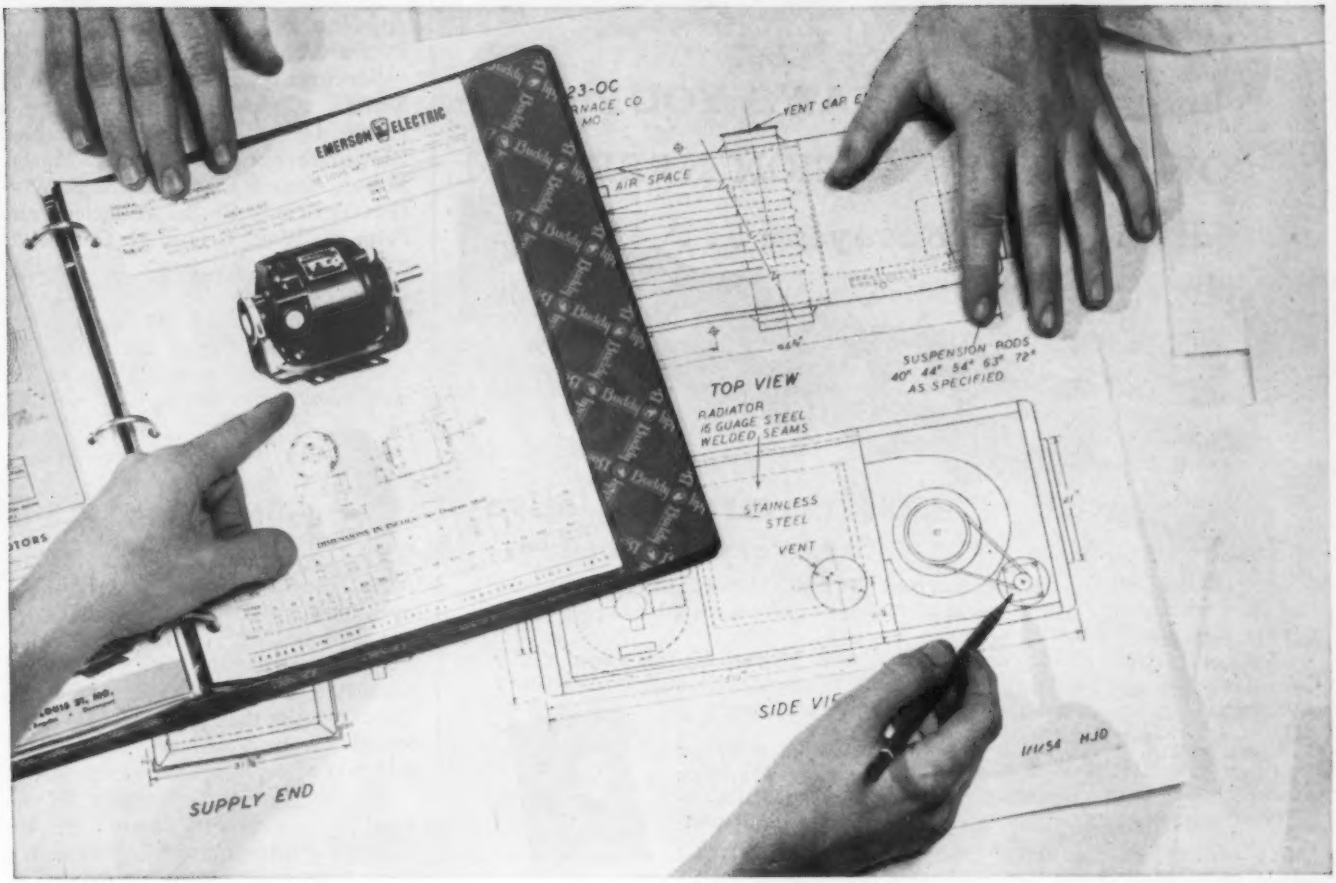
"Personally conducted tour" . . . that's exactly what your order gets, on its way through the Bristol mills. *One man* takes it from mail or phone straight through to box car or one of Bristol's own trailer rigs that serve a 250-mile radius overnight—So your order does no "desk-hopping" . . . keeps steadily on the move . . . gets on its way to you before bigger organizations could finish processing the paperwork.

But how does a middle-size mill do such a king-size job? Because, here at Bristol, there's no long "chain of command" . . . just a top team of responsible men, *experienced both in mill and sales procedure* who *have* the authority as well as the ability to get things done the "quickest way". And Bristol mill men will respect your specs to the dot . . . see to it that your successive orders are identical both dimensionally and physically. The burden of proof is on us . . . so call Bristol, Conn. (Ludlow 3-9246) or your nearest Bristol Brass distributor . . . *today*.

THE BRISTOL BRASS CORPORATION has been making Brass strip, rod and wire here in Bristol, Connecticut since 1850, and has offices and warehouses in Albany, Boston, Buffalo, Chicago, Cleveland, Detroit, Milwaukee, New York, Philadelphia, Providence, Rochester, Syracuse. The Bristol Brass Corporation of California, 1217 East 6th St., Los Angeles 21. The Bristol Brass Corporation of Ohio, 1607 Broadway, Dayton.

And now . . . BRASS FORGINGS, too . . .
The Bristol Brass Corporation announces the acquisition of Accurate Brass Company, 73rd Ave. & 88th St., Brooklyn 27, New York.
"How do you know it can't be forged?"

"Bristol-Fashion" means **Brass at its Best**



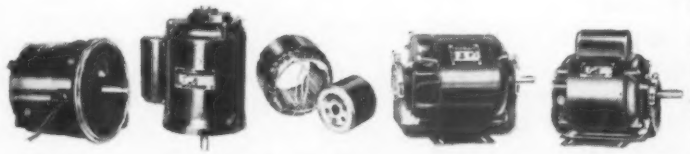
AN EMERSON-ELECTRIC MOTOR-DRIVE SPECIALIST PROVIDES "ON-THE-SPOT" HELP FOR YOU

The biggest plus value any appliance or equipment manufacturer can get from Emerson-Electric is the benefit of 65 years of specialized experience in power drives.

Emerson-Electric specialists will start at the beginning, or idea stage, of your problem—will stay with it through every phase of development and application—will work closely with your engineers on any improvement program you have in mind... Their services are available *right now*—at Emerson-Electric you don't have to stand in line and wait your turn, because every customer is a most valuable asset.

Profit by Emerson-Electric's years of experience and the combined ability of its motor specialists. They know motors AND their application. They can save you time and money.

Emerson-Electric supplies motors for appliances and equipment principally in these classifications: Oil Burner Blowers • Unit Heaters • Water Circulators • Air Conditioning • Washers Driers • Ironers • Garbage Disposers Refrigerators • Freezers • Water Pumps • Air Compressors



For Oil Burners | For Pumps | Hermetic Motor Parts | For Laundry Equipment | For Blowers

Write THE EMERSON ELECTRIC MFG. CO., ST. LOUIS 21, MO., for bulletins listed below.

- ☐ M 4016-A Capacitor-Start
- ☐ M 4016-B Split-Phase
- ☐ M 4016-C Integral
- ☐ M 4016-D Fan Duty
- ☐ M 4016-E Oil Burner
- ☐ M 4016-F Jet Pump
- ☐ M 4016-G Blower

Emerson-Electric
of St. Louis • Since 1890

BRANCHES: New York 7, N. Y., 11 Park Place • Chicago 23, Ill., 1623 S. Pulaski Road • Syracuse, N. Y., 209 Oakley Drive Detroit 7, Mich., 1375 E. Jefferson Ave. • Los Angeles 42, Calif., 4515 York Blvd. • Davenport, Iowa, 617 Brady St. Cincinnati 11, Ohio, 2917 Ratterman Ave.

For More Information Circle No. 289 on Inquiry Card—Page 17

for Chain Drive users

WHAT'S YOUR POWER TRANSMISSION NEED?

driving . . . conveying . . . timing . . .

• There's a cullman chain drive for every purpose

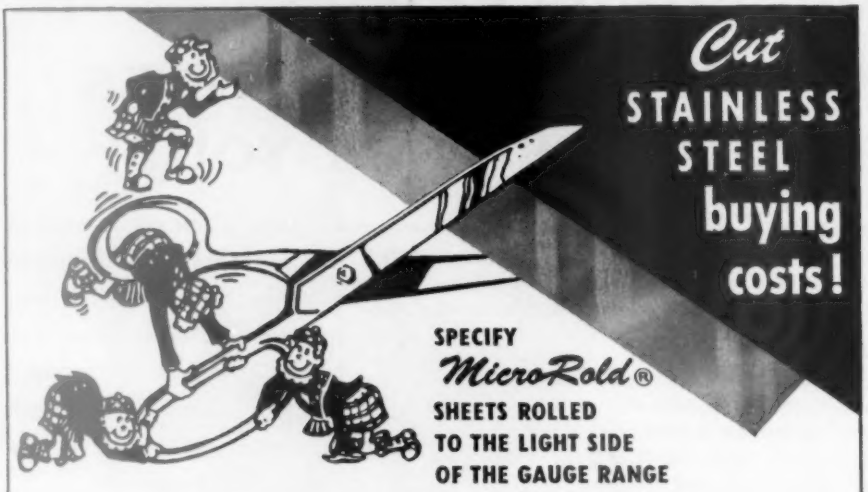
Keep installation and operating costs down with efficient, economical Cullman roller chain drives. They deliver more for less . . . save space, increase your equipment capacity, absorb shock loads.

For more machinery production and guaranteed, long trouble-free service specify Cullman on your next chain drive installation. Why not take advantage of 60 years of experience in engineering and producing the right chain drive?

cullman
POWER TRANSMISSION ROLLER CHAINS AND SPROCKETS
33653

Write today for Catalog 51, or see your local Cullman distributor.

REPRESENTATIVES AND DISTRIBUTORS IN ALL PRINCIPAL CITIES
CULLMAN WHEEL COMPANY, 1342 ALTGELD STREET, CHICAGO 14, ILLINOIS
For More Information Circle No. 290 on Inquiry Card—Page 17



Washington Steel's production methods provide new economies in the purchase of stainless sheet. The controlled accuracy of gauge in the rolling process gives you more area per ton or the equivalent area with lesser weight. This close adherence to specified gauge also results in longer die life.

Washington Steel CORPORATION
WASHINGTON, PENNSYLVANIA

Your steel warehouse distributor will gladly tell you the Micro-Rold Story.

For More Information Circle No. 291 on Inquiry Card—Page 17

(*Continued from page 254*)

on, New Holland Machine Division, treasurer.

Servings as directors are: John E. Lesher, Pennsylvania Water & Power Co.; C. B. Flick, Champion Blower & Forge Co.; H. W. Mason, Miller, Hess & Co.; Richard E. Wissler, Bearings Co. of America; and John W. Wolf, Sensenich Corp. The program included music by the Bob Stetler Trio.

On June 21 the Club held its annual picnic at Stone Barn in Millersville, Pa. An enjoyable time was had by all who attended.

350 Conn. PAs Hear Patrick McGinnis

Patrick McGinnis, president of the New Haven Railroad was featured speaker at a combined meeting of the Purchasing Agents Association of Connecticut and the Hartford County Purchasing Agents Association. It was the 15th annual combined meeting of the two groups and was also Sales Executives Night.

Mr. McGinnis' topic was "Railroading—Today and Tomorrow." He told his audience that "no industry will ever leave New England because of freight rates so long as I have anything to say about it." Backing up his statement was the fact that the New Haven had reduced freight rates on steel ingots 58% in order to make the "largest heavy industry in New England" competitive in its market.

Arrangements for the very successful meeting were handled by Jack L. Hall of G. F. Heublein & Bros., Inc., of Hartford

Trenton PAs Establish $400 Annual Scholarship

J. W. Devey, president of Purchasing Agents Club of Trenton, has announced the club will award an annual scholarship in the amount of $400. This award, for 1955, will be called the Alfred T. Holloway Scholarship.

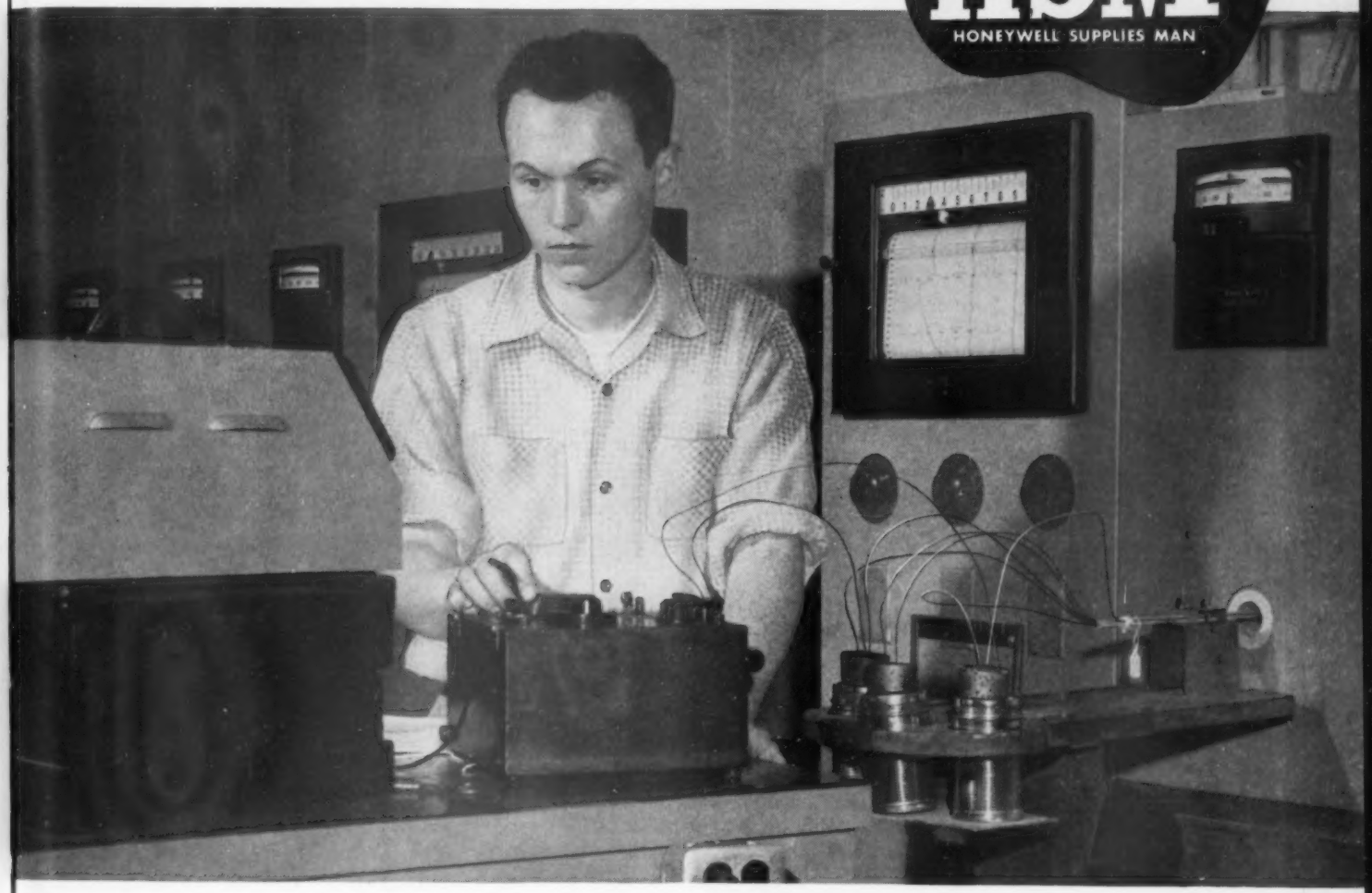
The Trenton Central High School faculty selecting committee will award the scholarship to an outstanding male graduate who has distinguished himself as a scholar and an all around good citizen during his high school career—one who shall be entering the field of business and finance in college.

Marshall F. Jones of Ternstedt Division, General Motors Corp., is chairman of committee which will finance the scholarship fund.

For More Information Circle No. 292 on Inquiry Card—Page 17→

Lab-tested thermocouple wire *available through your*

HSM
HONEYWELL SUPPLIES MAN



CONNECT a thermocouple with only ± 1% accuracy to an instrument with accuracy of ± ¼% . . . and how closely can you measure? The answer is simple. Overall accuracy *can't* be any better than your thermocouple.

To guarantee you consistent accuracy in your temperature detecting elements, Honeywell maintains a fully equipped wire checking laboratory. Here every spool of thermocouple or extension wire is tested against standard wires that have been certified by the National Bureau of Standards. Checks are made at numerous points throughout the temperature range of the calibration in which the wire will be used. Every spool of wire meets rigid standards before it is accepted. Calibration figures are available if desired on each spool.

The result of this laboratory control is that every order of Brown thermocouple or extension wire you receive can be counted on to deliver identical standards of high precision.

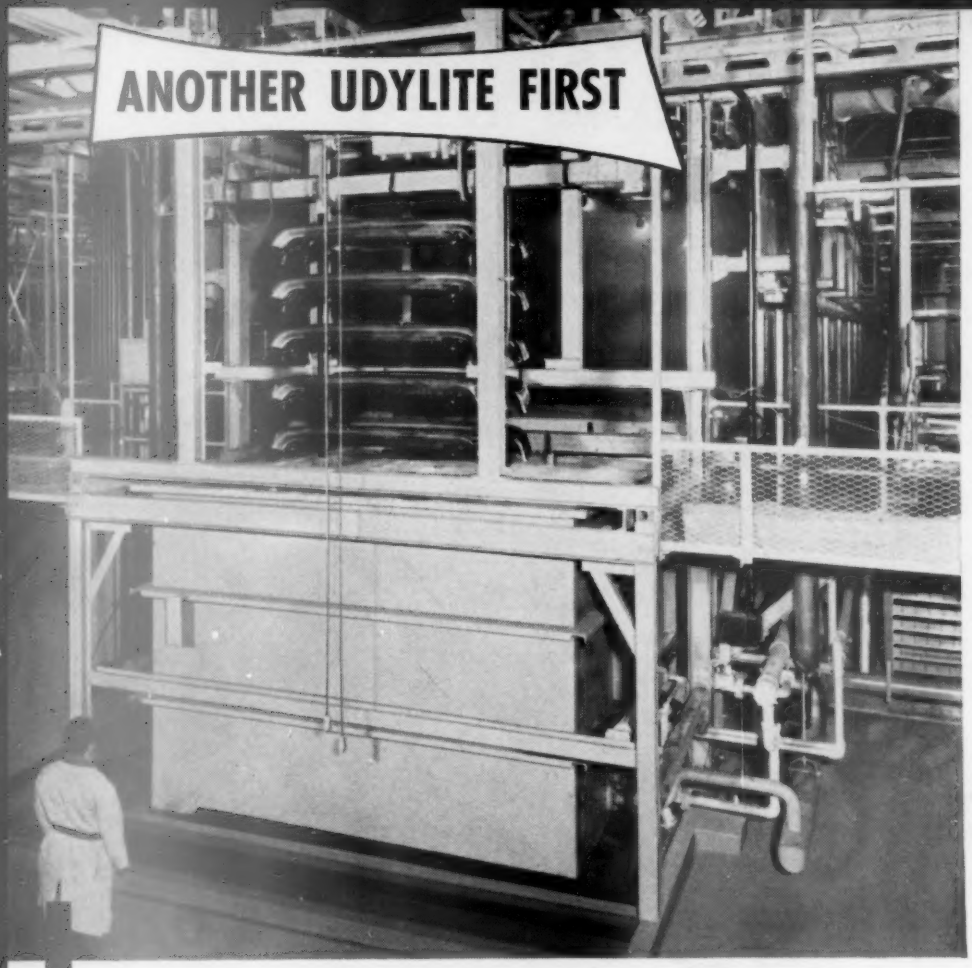
Ask your Honeywell Supplies Man to give you complete facts about Brown thermocouple and extension wires . . . and to tell you how the HSM Plan can bring you new convenience and economy in all your purchasing of pyrometer supplies. Call him today at your local Honeywell office . . . as near to you as your phone.

MINNEAPOLIS-HONEYWELL REGULATOR CO., *Industrial Division*, Wayne and Windrim Avenues, Philadelphia 44, Pa.—in Canada, Toronto 17, Ontario.

● **REFERENCE DATA:**
Write for Pyrometer Supplies Buyers' Guide No. 100-6.

H HONEYWELL

MINNEAPOLIS **Honeywell**
BROWN INSTRUMENTS
First in Controls



480 FEET OF PLATING EFFICIENCY

Udylite Selective Cell Plating Machine Electroplates 360 Automobile Bumpers Per Hour

Today in one of the nation's largest automobile plants, bumpers are being copper, nickel, chrome plated with a quality of finish and efficiency of operation unmatched by any other method. This work is being done on a new automatic electro-plating machine—a product of Udylite research—which incorporates features exclusive in Udylite equipment.

The Udylite design allows for automatic selection of empty plating cells as the racks emerge from preceding operations. As they drop into the cells they fit around anodes in the tank that are hung to conform with the shape of the bumper. This assures quality plate on all curved surfaces. Efficiency in rack utilization is also a feature, for of the 84 racks used for the machine, only four are out of service during the normal plating cycle.

Udylite builds plating and metal finishing machines large and small. The Udylite Full Automatic was the first standardized plating machine ever offered to the industry. It brought economy, high production and process control at a low installation price.

If you have a plating problem it will pay you to consult Udylite. Write to:

THE Udylite CORPORATION
DETROIT 11, MICHIGAN

WORLD'S LARGEST PLATING SUPPLIER

Federal Procurement

(*Continued from page* 126)

ministrative Services Act of 1949 was enacted and approved June 30, 1949. This law created the General Services Administration, brought together and transferred into it the old Procurement Division (Bureau of Federal Supply) of the Treasury Department, the Public Buildings Administration of the Federal Works Agency, the records management functions of the Archivist, and simultaneously transferred to the Federal Supply Service in the GSA the remaining functions concerning surplus property then vested in the War Assets Administration. This law vested in the General Service Administration very far-reaching and definite authority in the fields of personal and real property management of the Federal Government. It was the civilian government counterpart of the Armed Services Procurement Act of 1947 for the military agencies.

1954. Public Law 766, commonly known as the Motor Pool Law, was passed September 1, 1954. It contains principally regulations for proper identification, use and care of government-owned motor equipment, and the establishment of inter-agency motor pools for use by all government agencies, military and civilian, in designated areas.

Conclusions: Thus the major procurement legislation milestones are traced across 178 years of American history. The record shows increasing recognition of the importance of procurement regulations, especially over the past 20 years, coinciding with the period of rapid growth and expansion of government services and supply needs. From this recognition should come greater economies in government procurement, as the mechanics thereof are more closely geared to the present day volume, character, and diversity of Federal Government purchasing.

1 1 1

The P.A. as Publisher

(*Continued from page* 94)

strengthened by including on the circulation list others whose work is affected by purchasing activities, such as the sales manager, the controller, and the personnel manager.

For instance, if a "Cost Reducer" appears during the week after the controller has held his meeting on the subject, it will be his favorite bit of mail. Further, he may be asked

(*Please turn to page* 264)

For More Information Circle No. 293
←on Inquiry Card—Page 17

YOU'LL LIKE THESE SMOOTH-FITTING THREADS

You can count on fast, accurate assembly when you use Bethlehem fasteners. This is because the threads are so clean, so smooth-fitting. What's more, Bethlehem fasteners have strong shanks and easy-to-grip heads. They're top quality fasteners all the way—just what you're looking for.

BETHLEHEM STEEL

Bethlehem Bolts Are Good Bolts

WHAT HAPPENS NEXT?

If management has been wise, a fire tragedy will be stopped before it starts...if not, in 20 minutes extensive destruction and total loss could readily be the result.

First-rate fire protection is essential to the continued success of any business. With C-O-TWO Smoke or Heat Fire Detecting Systems, plus C-O-TWO High Pressure or Low Pressure Carbon Dioxide Type Fire Extinguishing Systems, as well as PYRENE Air Foam Type Fire Extinguishing Systems for specific outdoor locations, your plant can have fast, positive round-the-clock fire watchman service simultaneously at each fire hazard point . . . a fire tragedy is stopped before it starts.

Furthermore, there is a personal sense of responsibility inherent with PYRENE—C-O-TWO Fire Protection Engineers that assures you of fully adequate firesafety . . . a definite plus in your behalf. Whether it's fire detecting or fire extinguishing . . . portables or built-in systems . . . PYRENE—C-O-TWO means top quality backed by experienced engineering that results in operating superiority for you at all times.

Act now . . . don't take unnecessary chances with your investment any longer . . . the extensive experience of PYRENE—C-O-TWO over the years is at your disposal without obligation. Remember . . . a plant-wide fire protection survey skillfully executed today could be the means for greater profits tomorrow.

Pyrene

PYRENE — C-O-TWO

NEWARK 1 • NEW JERSEY

Sales and Service in the Principal Cities of United States and Canada

C-O-TWO

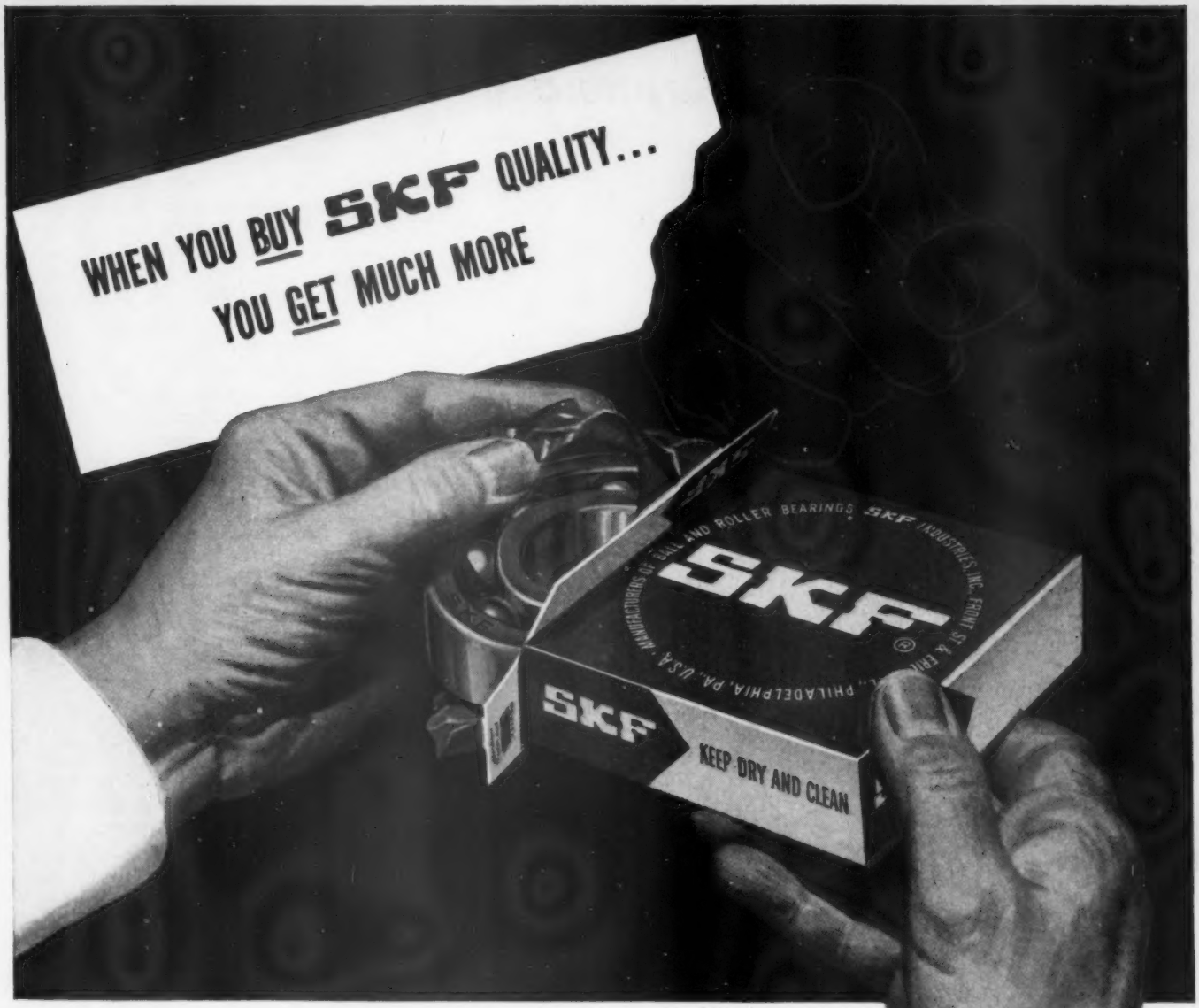
COMPLETE FIRE PROTECTION

portable fire extinguishers . . . built-in fire detecting and fire extinguishing systems

CARBON DIOXIDE • DRY CHEMICAL • VAPORIZING LIQUID • SODA-ACID • WATER • CHEMICAL FOAM • AIR FOAM

←For More Information Circle No. 294 on Inquiry Card—Page 17

For More Information Circle No. 295 on Inquiry Card—Page 17



To buy from an *authorized* SKF Distributor is to get extra values that cost you nothing . . .

The advice, when needed, of men who have and are taking SKF's courses in bearing selection, installation, and maintenance.

The use of SKF sound slide films and literature to train your own men on ball and roller bearings.

Prompt delivery of *any* SKF Bearing or Pillow Block from your distributor, who is backed by a nearby SKF warehouse stock.

Special-problem assistance from SKF's Field and Home-office service-engineering staff—the most experienced in the industry.

7616

SKF®
BEARINGS AND PILLOW BLOCKS

The right bearing *from* the right place puts the right bearing *in* the right place.

SKF INDUSTRIES, INC., PHILADELPHIA 32, PA., *manufacturers of* **SKF** *and* HESS-BRIGHT® *bearings.*

For More Information Circle No. 296 on Inquiry Card—Page 17

A hand for every JOMAC

A JOMAC for every hand

The features you want in a work glove—protection, safety, durability, full finger control, lower cost—are the very factors that govern the design of Jomac® Work Gloves. Describe your plant operations, temperature conditions, etc., and we'll gladly recommend an economical Jomac for the job, and send you a free sample pair. Jomac Inc., Department F, Philadelphia 38, Pa.

Jomac Hand Guards can be worn over gloves, if desired, to provide extra protection against abrasion, sharp edges, or heavy blows. Available rubber-lined to protect from grease or oil. They can be reconditioned repeatedly.

It pays to keep JOMACS on hand

JOMAC

Industrial Work Gloves

Outwear ordinary work gloves by 900%

PLANTS IN PHILADELPHIA, PA., AND WARSAW, IND.

For More Information Circle No. 297 on Inquiry Card—Page 17

The P.A. as Publisher

(*Continued from page* 260)

to guest-edit an issue and lend his specialized knowledge to the cause.

Or, the company president's remark, "Let's use some good old American ingenuity in beating our own record this year," could be translated into "Let's do a better job for less money." He will be interested in seeing how his objectives are being carried out in your departmental program.

Since leadership and education are essential to efficiency, and since the means of producing a departmental publication cost very little, it is reasonable to use this excellent tool. It is, in fact, a good example of "good old American ingenuity". It can be almost like getting something extra for nothing—nothing, that is, except a little extra mental effort.

* * *

Simplified Procedures

(*Continued from page* 103)

One outstanding recent example was the Coffee Investigation of 1954 which led to a Commission complaint and a cease and desist order.

Individual economic reports dealing with competitive or trade-restraining practices in industry are made by the Commssion along with suggestions for remedial measures.

Wool, Fur, Flammable Products

The Commission is responsible for enforcement of the Wool Products Labeling Act, Fur Products Labeling Act and Flammable Fabrics Act.

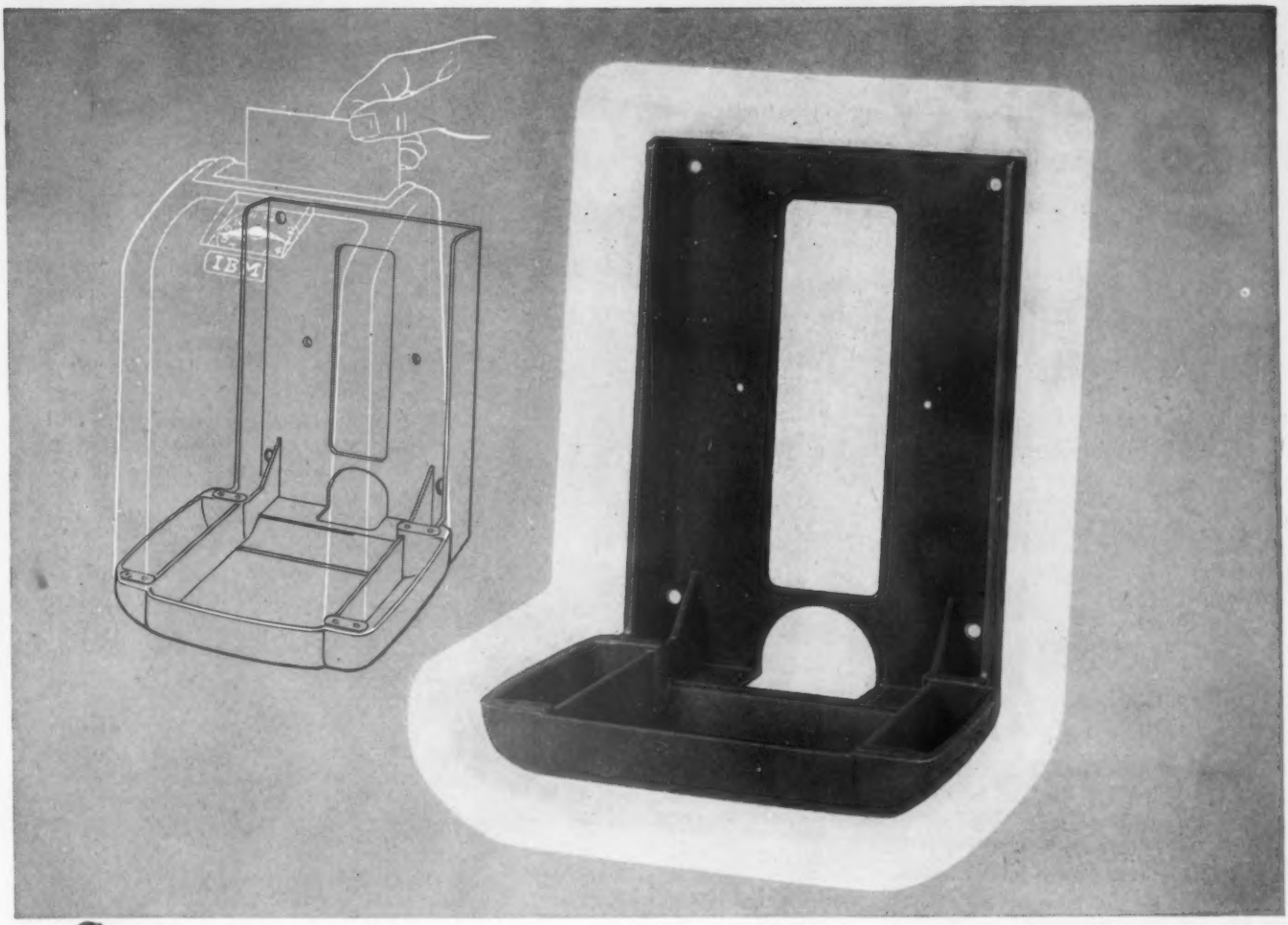
Wool products subject to the Act must carry labels indicating percentage of fiber content. Furs must be clearly labeled to show the true name of the animal producing the fur—if it's rabbit, the label must say so. Sale of apparel that is so highly flammable that it is dangerous to the wearer is prohibited under the Flammable Fabrics Act.

Adjudicative Proceedings

The section on Adjudicative proceedings has been boiled down to 10 pages. Commission officials consider this quite an accomplishment. It took over two years of research to pare down this section to its present size and rid it of complicated legalisms.

Commission Chairman Howrey recently stated his concept of what

(*Please turn to page* 266)



TIME MARCHES ON *automatically . . . supported by*

PARKER DIE CASTINGS

PARKER SALES ENGINEERS

CHICAGO 49, Ill.
Ollie J. Berger Company • 2059 East 72 Street

CINCINNATI, Ohio
William H. Broxterman • 2174 Buck Street

DETROIT 35, Mich.
Hodgson-Geisler Co. • 18917 James Couzens

GIRARD, Penna.
Daniel F. Marsh • 35 Chestnut Street

KIRKWOOD 22, Mo.
Edward F. Higgins, Jr. • 102 West Adams Street

WILTON, Conn.
Girard L. Palmer • Belden Hill Road

SYRACUSE, N. Y.
J. C. Palmer • 712 State Tower Bldg.

BELLEFONTE, Penna.
Warren G. Olson • 420 East Linn Street

IBM'S fully-automatic, electric time recorder is a far cry from the old-fashioned time clock. This modern engineering development handles with ease and sureness any kind of work schedule, no matter how complex. To produce the wall mounting bracket shown above, IBM and Parker together worked out the design of the part. The result: a die casting that meets every specification at lower total cost.

This close co-operation from blue print to finished product typifies the complete engineering—as well as manufacturing—service offered by Parker. No matter how complex your die casting problem, Parker will be glad to help you find the answer. Just call the nearest Parker sales engineer listed at the left or write the factory direct.

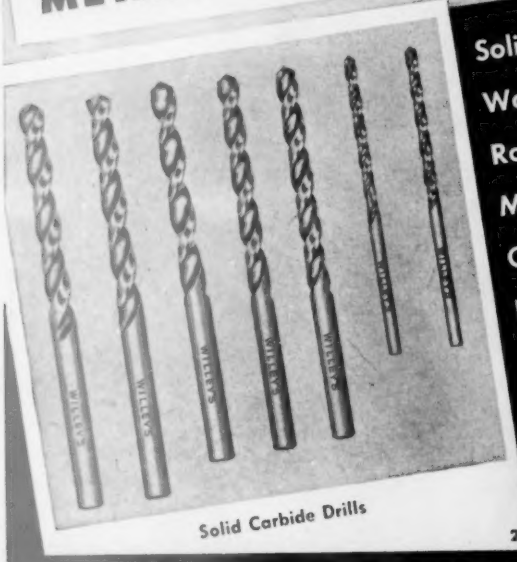
Parker White Metal Company • 2153 McKinley Ave., Erie, Pa.

PARKER **ALUMINUM and ZINC *die castings***

For More Information Circle No. 298 on Inquiry Card—Page 17

WILLEY'S
TUNGSTEN CARBIDE
METALS and TOOLS

WE SPECIALIZE
in "SPECIALS"
Send Your Prints


Solid Carbide Drills
2

Solid Carbide Drill Bushings
Work Support Blades
Roller Turning Tools
Milling Cutters
Grooving Tools
Boring Tools
Inserts and Blanks

Write or Wire for Catalog

WILLEY'S CARBIDE TOOL CO.
SOLE MAKERS OF WILLEY'S METAL
1342 W. Vernor Highway Detroit 1, Michigan

For More Information Circle No. 242 on Inquiry Card—Page 17

PAGE chain link FENCE
America's First Wire Fence—since 1883

• Security against the ever-present hazards that can damage or destroy property, or injure persons, is a responsibility to assign to PAGE Fence. Whether you choose heavily galvanized Copper-Bearing Steel, corrosion-resisting Aluminum, or long-lasting Stainless Steel, PAGE Fence is quality controlled from raw metal to rugged fence erected on metal posts deep-set in concrete. Available are 8 basic styles, varied by heights, types of gates, top rails, and barbed wire strands for added security. Finally, your PAGE Fence will be expertly erected by a reliable, technically trained firm. For important fence data and name of nearest PAGE firm—

Write to PAGE FENCE ASSOCIATION, Monessen, Pa., or look in Thomas' Register for listing of Page Chain Link Fence Distributors under "PAGE STEEL AND WIRE DIVISION," or see MacRae's Blue Book for listing under "FENCING, WIRE, LINK," or consult Sweet's Industrial Construction File.

PRODUCT OF PAGE STEEL & WIRE DIVISION OF AMERICAN CHAIN & CABLE COMPANY, INC.

For More Information Circle No. 299 on Inquiry Card—Page 17

Simplified Procedure

(*Continued from page* 264)

the FTC should be:

". . . I should like to stress the fact that the Federal Trade Commission was intended by Congress to perform duties in a field of administrative and regulatory law in which much pioneer and expert work was needed. It was expected to establish precedents by which business men could be guided in the conduct of their affairs. I do not see how this duty can be performed unless the Commission prepares and publishes basic findings of fact and well-reasoned opinions, and provides remedies that deal with and correct the precise mischief involved."

In the past, the Commission has been accused of issuing findings that were "masterpieces of ambiguity". Since he took office, Mr. Howrey has emphasized the need for descriptive, narrative type reports couched in simple and direct language.

"A person charged with writing a narrative, descriptive account of a controversy approaches the task from a different viewpoint," Mr. Howrey points out. "His first concern is to set forth as clearly and accurately as possible what has happened. Having stated the facts, he will endeavor to reach general conclusions of fact or judgment, and finally he will apply the law to these general conclusions. He will be concerned throughout with the fairness and accuracy and impartial character of the report rather than with its sufficiency in supporting one or another legal conclusions."

In the preparation of the revised rules the Commission worked with bar groups and its own Administrative Procedure and Rules Committee. The new "Rules of Practice and Procedure" may be obtained by writing to the Division of Legal and Public Records, Federal Trade Commission, Washington 25, D. C.

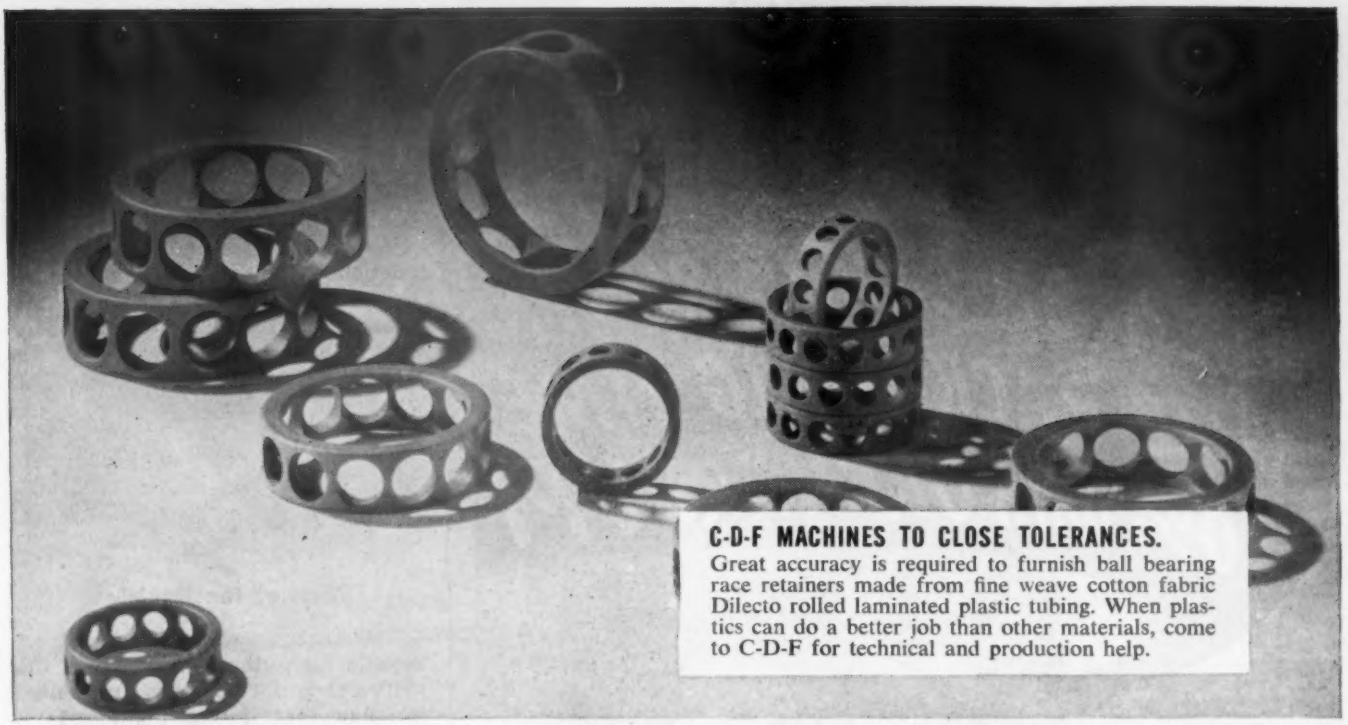
* * *

Liability in Unauthorized Transaction

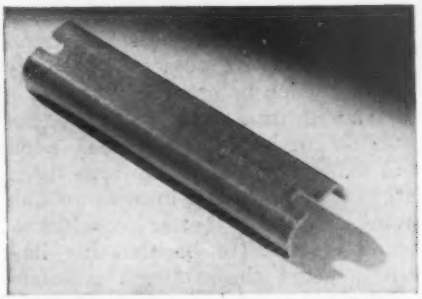
(*Continued from page* 122)

The ground on which this general principle rests, that an agent in exceeding the authority with which he has been clothed by his principal, becomes responsible for whatever damages may be incurred by others with whom he deals as such agent, was outlined by the New

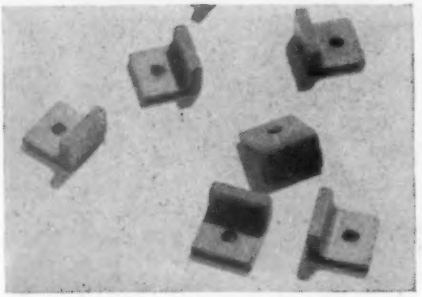
(*Please turn to page* 268)



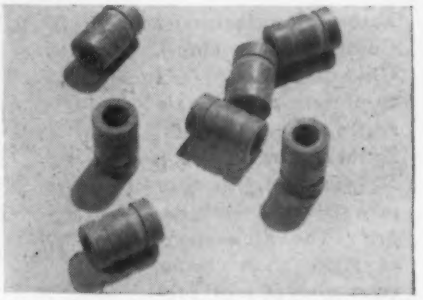
C-D-F MACHINES TO CLOSE TOLERANCES. Great accuracy is required to furnish ball bearing race retainers made from fine weave cotton fabric Dilecto rolled laminated plastic tubing. When plastics can do a better job than other materials, come to C-D-F for technical and production help.



C-D-F PIONEERED IN POST-FORMING of laminated plastics. This technique gives you stronger, more versatile insulating parts with lower costs. This aircraft channel strip is an example of simple post-forming.

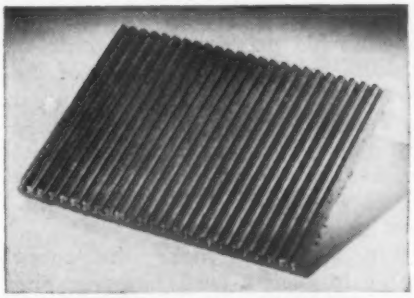


C-D-F DOES THE UNUSUAL. These rubbing blocks are made from fine-weave cotton cloth Dilecto molded *tubing* that has been pierced and cut. The part gains in mechanical strength — the product gets longer service life.

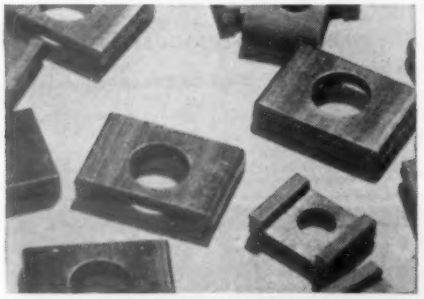


C-D-F SPECIALIZES IN AUTOMATIC SCREW MACHINING of plastic components. These breaker arm bushings are made from Dilecto paper base rolled tubing on high speed machines by men who know and use cost saving methods.

Yes, C-D-F is a big reliable source for fabricated plastics!



C-D-F SERVES MANY INDUSTRIES with fabricated specialties. A great amount is concentrated in the automotive and allied fields. This aircraft part has a corrugated surface on a strong woven asbestos laminated base.



C-D-F IS A PUNCHING SPECIALIST on these starter solenoid insulators. This is XX-26 Dilecto molded channel strip, pierced and punched to length. Special C-D-F punching grades give you lower costs, faster assembly, fewer rejects.

C-D-F COMES UP WITH THE ANSWERS to insulating problems. These unique snap-in grommets are easy to insert, spring out and hold tight. Write for samples. The chances are that C-D-F is already making the answer to your problem.

See our general catalog in Sweet's Design File for more technical data, the address and telephone number of your nearest C-D-F sales engineer. Also, write for detailed information, samples, or send us your print for quotation.

CDF *Continental-Diamond Fibre*

CONTINENTAL-DIAMOND FIBRE DIVISION OF THE BUDD COMPANY, INC.

NEWARK 41, DELAWARE

Advertisement

For More Information Circle No. 300 on Inquiry Card—Page 17

EATON

EATON STOPS RUST... CUTS PACKAGING TIME 30% with ORCHARD VPI®

Eaton Manufacturing Company, Cleveland, Ohio uses Orchard VPI to prevent rust on axle replacement parts. Eaton reports, *"We save 30% in packaging time with Orchard VPI Paper"*. The illustrations at right show Eaton gears and pinions preserved with a single wrap of Orchard VPI; a 6 year test conclusively proved Orchard VPI's lasting qualities for protection against rust.

Write For Free VPI Sample Kit
No Obligation

Orchard VPI gives off an invisible vapor that stops rust on all ferrous metal parts. It is economical for packaging, for shipping and for storage. It saves time, delivers parts in resalable condition and is easy to use! Orchard VPI is available in sheets, rolls, bags and shrouds — all shapes and sizes to fit your needs.

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Please send us the Orchard VPI Sample Kit.

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For More Information Circle No. 301 on Inquiry Card—Page 17

Liability in Unauthorized Transaction

(*Continued from page* 266)

York Court of Appeals in an action involving a sale of securities for less than the agent had been authorized to accept.

A banking firm had instructed an auctioneer to sell 200 shares of railroad stock at $186 and 300 shares at $187.50. The auctioneer sold the stock for less and the principals repudiated the sale and refused to deliver. In the action brought by the purchaser of this stock against the auctioneer the New York Court of Appeals said, in holding him personally liable for the loss:

Basis of the Decision

"When an agent makes a contract beyond his authority, by which the principal is not bound by reason of the fact that it was unauthorized, the agent is liable in damages to the person dealing with him upon the faith that he possessed the authority which he assumed.

"The ground and form of his liability in such a case has been the subject of discussion and there are conflicting decisions upon the point, but the better considered opinion seems to be that his liability, when the contract is made in the name of his principal, rests upon an implied warranty of his authority to make it and the remedy is by an action for its breach.

"The reason why the agent is liable in damages to the person with whom he contracts when he exceeds his authority is that the party dealing with him is deprived of any remedy upon the contract against his principal. The contract, though in form the contract of the principal, is not his in fact and it is but just that the loss occasioned by there being no valid contract with him, should be borne by the agent who contracted for him without authority.

"In order to make the agent liable in such a case, however, the unauthorized contract must be one which the law would enforce against the principal if it had been authorized by him. Otherwise the anomoly would exist of giving a right of action against an assumed agent for an unauthorized representation of his power to make a contract when the breach of the contract itself, if he had been authorized to make it, would have furnished no ground for action."

For More Information Circle No. 302 on Inquiry Card—Page 17→

Look at the wide range of USS Stainless Steel available

YOU CAN COMB THE COUNTRY, but nowhere will you find a wider selection of Stainless Steel.

United States Steel has the grades, shapes, sizes and finishes that are most useful—including some that are downright difficult to find.

Here's your best source of supply, so call United States Steel first when you need service-tested Stainless Steel.

QUICK SERVICE. If you need immediate delivery, call your local warehouse distributor who handles USS Stainless Steel. You'll get *fast* delivery.

PRODUCT	FINISHES	WIDTHS	LENGTHS	THICKNESSES	SIZES
SHEETS	No. 1—No. 2D No. 2B—No. 4 No. 3 No. 6—No. 7	from 24″ to 72″	up to 196″ in cut lengths Also available in coils up to 48″ (only in unpolished finishes 2B and 2D)	from .014″ to .1874″	
PLATES	HR—HRA—HRA&P Polished	over 10″ to 132″	up to 432″	.1875″ and heavier	
ANGLES	HRA&P		up to 360″	from ⅛″ to 1⅛″	from ¾″ x ¾″ to 8″ x 8″
BARS Rounds, Squares, Octagons, Hexagons Special Sections	HR—HRA—HRA&P CD—RT CF—CG & Polished (Rounds only) (Rolled or Extruded)		up to 360″		from 5/16″ to 9″
SEMI-FINISHED Blooms, Billets		from 4″ to 15⅞″		from 4″ to 15⅞″	
FLATS	HR—HRA—HRA&P CD	from ⅜″ to 10″	up to 360″	from ⅛″ to 2¼″	
WIRE Coils and Straight and Cut	Copper, Lead, Tin, Galvanized, Wax, Bright, Oil, Soap, Lime		from 12′ to 22′		from .008 to .500
COLD-ROLLED STRIP Coils and Straight and Cut	No. 1, No. 2	from 3/16″ to 23 13/16″	from 12′ to 20′	from .010″ to .1874″	
TUBING	Standard Pickle, Grit No.'s 80, 120, 180, 320 and rouge polishing		Comparable to other carbon, alloy cold-drawn tubing		O. D. SIZES from ¼″ to 9″

GRADES

A.I.S.I. TYPE	USS DESIGNATION
300	**SERIES**
301	USS 17-7
302	USS 18-8
302B	
303	USS 18-8FM
303Se	USS 18-8FMSe
304	USS 18-8S
304L	USS 18-8S C.03 Max.
305	USS 18-8FS
308	USS 20-10S
309	USS 25-12
309S	USS 25-12S
310	USS 25-20
310S	USS 25-20S
314	USS 25-20Si
316	USS 18-8Mo
316L	USS 18-8Mo C.03 Max.
317	USS 19-9Mo
	USS 18-8MoCbTa
321	USS 18-8Ti
347	USS 18-8Cb
	USS-18-8CbTa
	USS 12-12
400	**SERIES**
403	USS 12 Turbine
405	USS 12 AL
410	USS 12
416	USS 12FM
416Se	USS 12FMSe
420	
430	USS 17
430F	
430T	
431	
442	
446	USS 27
500	**SERIES**
	USS 5Mo
	USS 5SMo

UNITED STATES STEEL CORPORATION, PITTSBURGH · AMERICAN STEEL & WIRE DIVISION, CLEVELAND · COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
NATIONAL TUBE DIVISION, PITTSBURGH · TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. · UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

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SHEETS · STRIP · PLATES · BARS · BILLETS · PIPE · TUBES · WIRE · SPECIAL SECTIONS

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Every day is Saturday...

at Belmont!

If our ingots were infantrymen, they'd blow their tops! For every day—and all day—is inspection day at Belmont.

Not a single drop, square, stick, grain or ingot "gets by" the critical eye of Belmont metal experts in anything short of perfect condition...at any stage of production.

And Belmont quality is exceeded *only* by Belmont service—the result of 59 years of "falling in" on time.

Better buy Belmont...for both!

Belmont

SMELTING & REFINING WORKS, INC.

309 BELMONT AVENUE • BROOKLYN 7, NEW YORK

"Putting Mettle into Metals Since 1896"

For More Information Circle No. 303 on Inquiry Card—Page 17

Catalog Files

(*Continued from page* 20)

MATERIAL FOR OVENS, DRIERS

A 16-page illustrated booklet, "Marinite For Driers, Ovens, Breechings and Housings," gives information on an asbestos-diatomaceous silica material that both builds and insulates. Photo show uses.

Johns-Manville

Circle No. 338 on Inquiry Card—Page 17

SAFETY SIGNS ARE SELF-STICKING

Self-sticking accident prevention signs, in over 1000 different forms are described in multi-colored bulletin No. 145-G. Signs are for basic (e.g. "Danger") and special ("No Smoking") purposes.

W. H. Brady Co.

Circle No. 339 on Inquiry Card—Page 17

PROPER LUBRICATION PROTECTS EQUIPMENT

How to select the proper lubricant, store and handle it efficiently to save money on machine and engine operation is treated in a 66-page brochure. It shows how to avoid costly shutdowns.

Standard Oil Co. of Calif.

Circle No. 340 on Inquiry Card—Page 17

BOWERS

BATTERIES

Always Better

BOWERS BATTERY & SPARK PLUG CO., READING, PA.

For More Information Circle No. 304 on Inquiry Card—Page 17

It's NEW... It **TOPS** the Best!

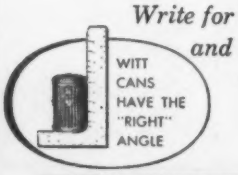
New WITT PUSH-TOP LID

...the lowest priced self-closing LID on the market!

Converts refuse cans to self-closing receptacles. Used wherever sanitary receptacles are needed . . . in factories, schools, restaurants, institutions, homes, parks, etc. Heavy-duty, double spring hinge assures tightly closed containers.

Made of durable 24 gauge Witt Perma-Zinc sheet steel. Available for No. 1, 2 and 3 WITT Cans or those cans having 16″, 18¼ ″ or 20⅜ ″ outside diameters.

Write for complete details and name of nearest distributor.



WITT Cans

"Originators of the Corrugated Can"

THE WITT CORNICE COMPANY

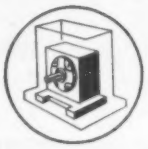
2127 Winchell Ave., Cincinnati 14, Ohio

For More Information Circle No. 305 on Inquiry Card—Page 17

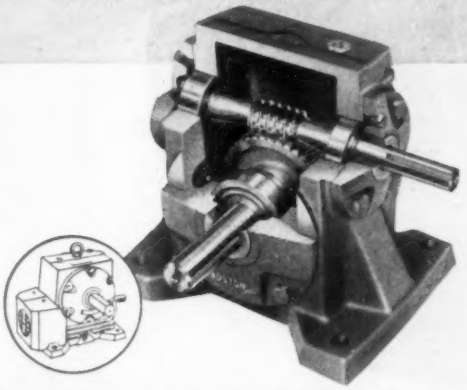
THE NEW BOSTON GEAR 100 SERIES SPEED REDUCTION UNITS

Every feature you want- any model you need - *FROM STOCK*

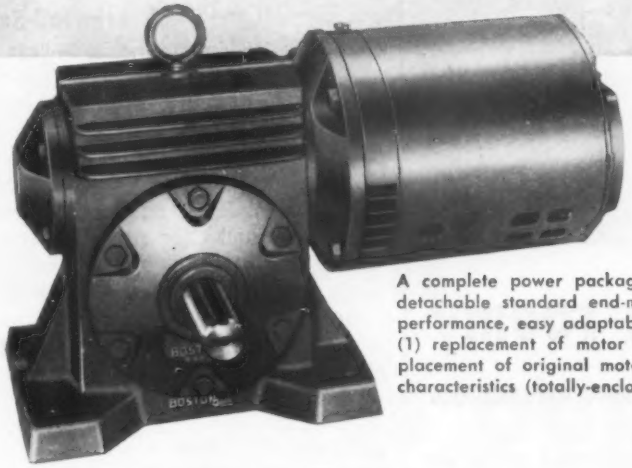
REDUCTORS



CERTIFIED ratings
NEW space-saving design
NEW clean contours
NEW gearing efficiency
NEW cooling fins
FAN-COOLING optional on larger sizes



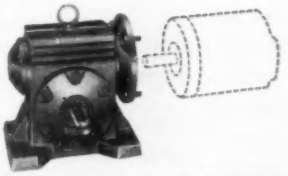
RATIOMOTORS



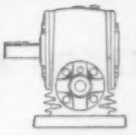
— all new features of Reductors plus NEW *Combination* CONSTRUCTION

A complete power package — gear reduction unit and easily detachable standard end-mounted motor — combined for peak performance, easy adaptability, big maintenance savings. Permits (1) replacement of motor without disturbing gear unit. (2) Replacement of original motor at any time with motor of special characteristics (totally-enclosed, etc.).

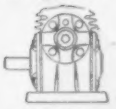
FLANGED REDUCTORS The Ratiomotor gear reduction unit, supplied *without* motor. You buy and attach the motor of your own choice.



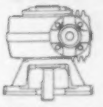
Certified MAXIMUM HORSEPOWER PER DOLLAR



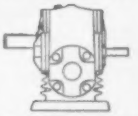
Horizontal Right Angle Drive Worm gear on top



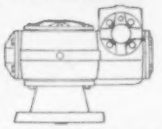
Horizontal Right Angle Drive Worm gear under



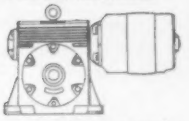
Vertical Right Angle Drive



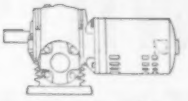
Horizontal Parallel Drive Double Reduction



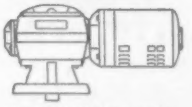
Vertical Right Angle Drive Double Reduction



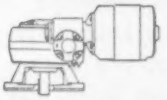
Horizontal Right Angle Ratiomotor



Horizontal Parallel Ratiomotor Double Reduction



Vertical Right Angle Ratiomotor



Vertical Right Angle Ratiomotor Double Reduction

CALL YOUR **BOSTON Gear®** DISTRIBUTOR

for complete information — or write: Boston Gear Works, 74 Hayward Street, Quincy 71, Massachusetts.

NEW CATALOG **R-56** gives complete details, selection charts, engineering data. Get your copy.

PATENTS APPLIED FOR

108 MODELS

1064 STANDARD STOCK UNITS

Look under "GEARS in the Yellow Classified Section of your Telephone Directory for the BOSTON Gear Distributor nearest you. 55 BG-R-13

For More Information Circle No. 306 on Inquiry Card—Page 17

CHIPPERS get longer, more comfortable protection

Rigid metal top bar holds sturdy nylon cups firmly—makes goggles much easier to handle, too!

Kover-Mor® Goggles designed for chippers are fitted with Willson *Super-Tough* lenses heat treated for greater impact resistance. Note how 4 screened eye cup ports admit air to keep lenses fog-free.

WILLSON

Kover-Mor® Goggles are roomy

...fit over large-frame prescription glasses

Kover-Mor® Chipper's Goggles are made of lightweight nylon with the highest *strength/weight ratio* known for goggle cups. Chippers say they have features that make them the most comfortable goggles of all.

Snug, easy fit is assured by adjustable two-piece headband, leather bridge curtain and metal top bar. Extra ventilation is provided by slots in screw caps *plus* ports in cups.

Standard 50 mm. round lenses fit Kover-Mor® Goggles. No need to stock odd-size replacement lenses! Lens changing is simplified by external screw caps.

Ask your Willson distributor for Kover-Mor® Chipper's Goggles—available with opaque or clear nylon cups. They'll withstand toughest use.

More Than 300 Safety Products Carry This Famous Trademark

WILLSON®

Leaders in Research and Development of Safety Products Since 1870

WILLSON PRODUCTS, INC., 221 WASHINGTON ST., READING, PA.

For More Information Circle No. 307 on Inquiry Card—Page 17

BULK HANDLING OF SMALL PARTS

A new materials handling system, "Flowmation," that is claimed to cut handling area by 50%, is described in a fully illustrated 6-page folder. System suits demands of automated plants.

Powell Pressed Steel Co.

Circle No. 341 on Inquiry Card—Page 17

COOLING TOWERS SAVE WATER

Catalog WT & CT-583 (16 pp) contains copious material on 25 styles of air compressor cooling towers. They save more than 95% of the water used to cool compressor jackets, intercoolers, etc.

Halsted & Mitchell

Circle No. 342 on Inquiry Card—Page 17

COST-SAVING COMPRESSORS

Gas-engine-driven compressors in 330 to 660 hp range are the subject of 5-color bulletin, Form 3128-A. Basic features responsible for long range savings are explained, with photos.

Ingersoll-Rand

Circle No. 343 on Inquiry Card—Page 17

INDUSTRIAL TRUCKS AND ATTACHENTS

Four basic types of industrial trucks as well as specially designed trucks for specific operating requirements are covered in an 8-page catalog. A section treats of attachments used.

The Elwell-Parker Electric Co.

Circle No. 344 on Inquiry Card—Page 17

WHERE TO USE WHAT JIB CRANE

Eight of the more popular types of jib cranes are pictured and described in an eight-page 2-color catalog. The usual application of each is described. Available accessories are also listed.

Abell-Howe Co.

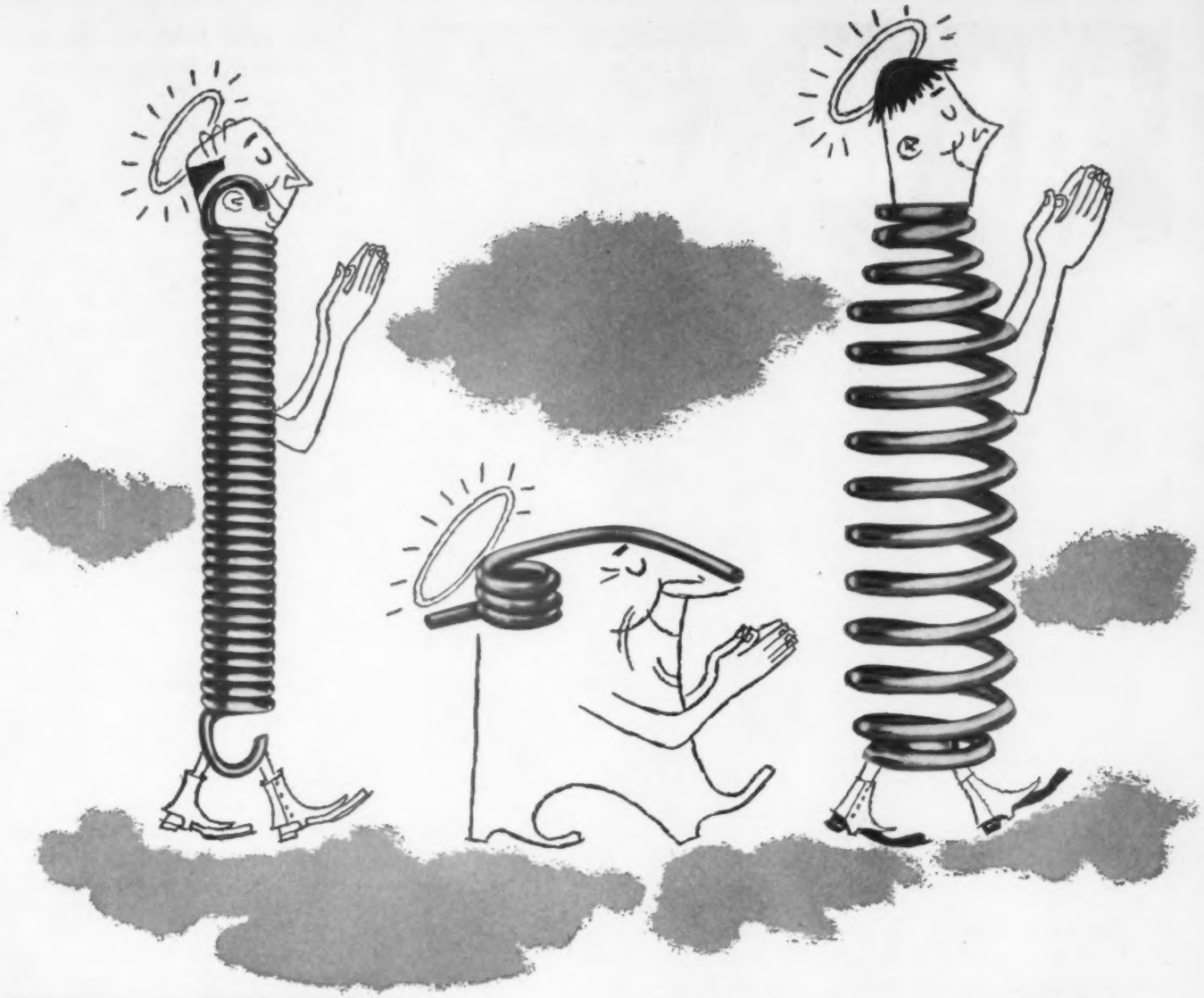
Circle No. 345 on Inquiry Card—Page 17

SOLVING ROOF PROBLEMS

Those concerned with roof maintenance will find a 32-page brochure an authoritative discussion. Illustrated by photos, drawings and diagrams, it tells how to diagnose and treat roof troubles.

The Tremco Mfg. Co.

Circle No. 346 on Inquiry Card—Page 17



WE NEVER LOSE OUR TEMPERS!

Wickwire Springs never, never lose their tempers. They are designed and manufactured by experts to give long-life performance—no matter how constantly they are flexed.

Supplied in all standard shapes and sizes, and in special designs to meet unusual requirements.

For complete information about Wickwire Springs and Formed Wires, write Sales and Engineering, 2 New Bond Street, Worcester, Mass. Or contact any of the sales offices listed below:

THE COLORADO FUEL AND IRON CORPORATION—Denver and Oakland
WICKWIRE SPENCER STEEL DIVISION—Atlanta • Boston • Buffalo
Chicago • Detroit • New Orleans • New York • Philadelphia

WICKWIRE SPRINGS AND FORMED WIRES
PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION

CF&I

3310

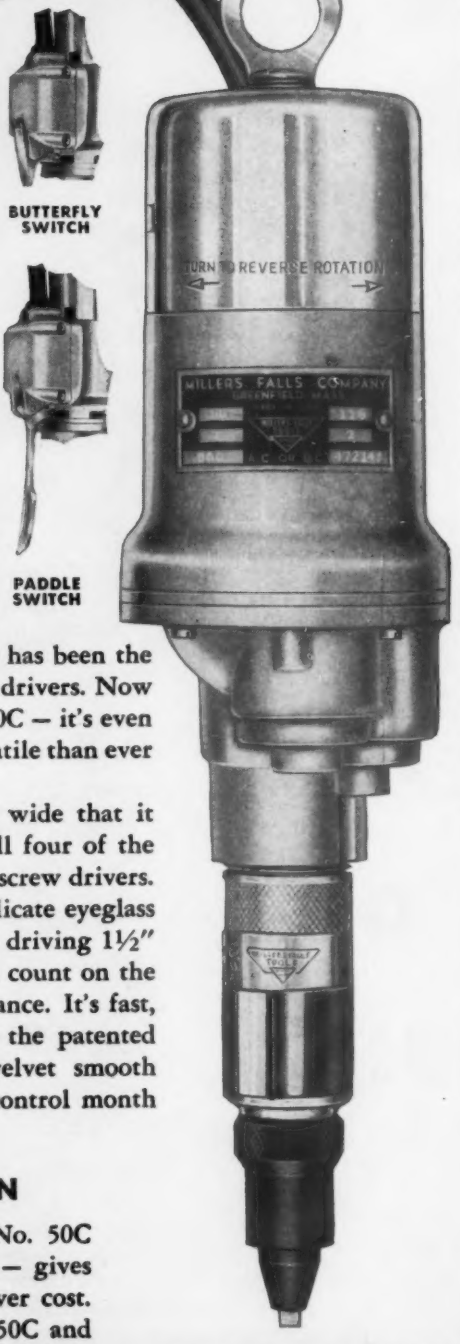
For More Information Circle No. 308 on Inquiry Card—Page 17

NEW MILLERS FALLS No. 50C ELECTRIC SCREW DRIVER

- TWICE THE DRIVING POWER
- GREATER CAPACITY — wood screws up to #12 x 1½" — machine screws to ¼"
- MUCH LONGER BRUSH LIFE
- BUILT-IN REVERSING SWITCH
- INTERCHANGEABLE SWITCH LEVERS (Paddle or Butterfly)

Plus

the famous, super-sensitive ADJUSTOMATIC® CLUTCH



For years, the Millers Falls No. 50 has been the most successful of all electric screw drivers. Now — in this remarkable new Model 50C — it's even better — more powerful, more versatile than ever before.

In fact, its range of uses is so wide that it entirely supersedes and replaces all four of the previous No. 50 and No. 52 Series screw drivers.

Whether you are assembling delicate eyeglass frames with tiny optical screws or driving 1½" #12 screws in hardwood, you can count on the new 50C for outstanding performance. It's fast, powerful and dependable — and the patented "Adjustomatic" Clutch assures velvet smooth operation with precision torque control month after month.

FREE DEMONSTRATION

Let us show you how the new No. 50C Screw Driver cuts assembly time — gives better, more uniform work at lower cost. Write, too, for literature on the 50C and on Millers Falls wide line of other high-performance electric tools for production and maintenance.

MILLERS FALLS COMPANY
Dept. PR-8, Greenfield, Mass.

MILLERS FALLS TOOLS
SINCE 1868
The Mark of Superiority

For More Information Circle No. 309 on Inquiry Card—Page 17

How Good Salesmanship Can Help Purchasing Agents

(Abstract of a talk by Ray Bosch, Purchasing Agent, Thompson Products, Inc., before a recent sales conference of Austenal Laboratories, Inc., New York, N. Y.)

A purchasing agent is a vital part of the management team. As manager of the procurement activity he has the final word in the selection of sources of supply. He also delegates this authority to his buyers. Even though the determination of a source of supply, in many instances, is a cooperative action between the purchasing agent and members of departments such as engineering and production, he has the final authority to approve or disapprove of the source. You can, therefore, recognize that the buyer or the purchasing agent is the right man to have on your side or at least to have some regard for you and your company.

Due to the nature of his work, he is in daily contact with sources of supply, negotiating for new materials and products that will be of greater benefit to his company, meeting with his engineers, production personnel, manufacturing personnel and, in many cases, the worker in the plant. **He, therefore,** is one man in the organization who should know what his company's requirements are. He should be your contact man at all times.

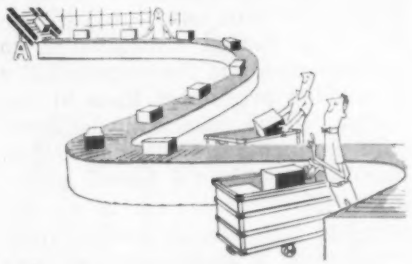
He is responsible for negotiations entered into under his jurisdiction. If he negotiates and buys to the disadvantage of his company's best interests, he is subject to severe criticism. If deliveries are not received on time, no matter what efforts he has extended or the circumstances, he isn't expediting vigorously enough and he's not tough enough. When products are received and rejected, he is blamed for having poor vendors. If his materials are received ahead of schedule, he is blamed for not keeping inventories in balance. Then, of course, the prices he pays for goods are always too high.

A good buyer is ever on the alert to develop good suppliers as much as good salesmen are ever on the alert to develop good customers. It is impossible for a buyer to do an outstanding job in selecting sources, unless he is well informed in his own company's requirements and also thoroughly acquainted with the prospective source's ability to produce. Much of his information is obtained through capable salesmen he interviews.

(Please turn to page 276)

IT'S HAPPENING IN HUNDREDS OF COMPANIES

It can happen in yours . . .



THESE FEATHERWEIGHT, JOB-DESIGNED RECEPTACLES SPEED MATERIALS HANDLING . . . SIMPLIFY "HOUSEKEEPING"

It's happening every day . . . . a simple change, from clumsy, flimsy, makeshift receptacles to rugged, featherweight Kennett Units — makes a fair materials-handling system good, a good system excellent.

LIGHT WEIGHT IS A PRIME REASON Kennett Receptacles are made from National *Vulcanized Fibre*—only half as heavy as aluminum. With Kennett Receptacles, the weight is in the load, *not* in the container.

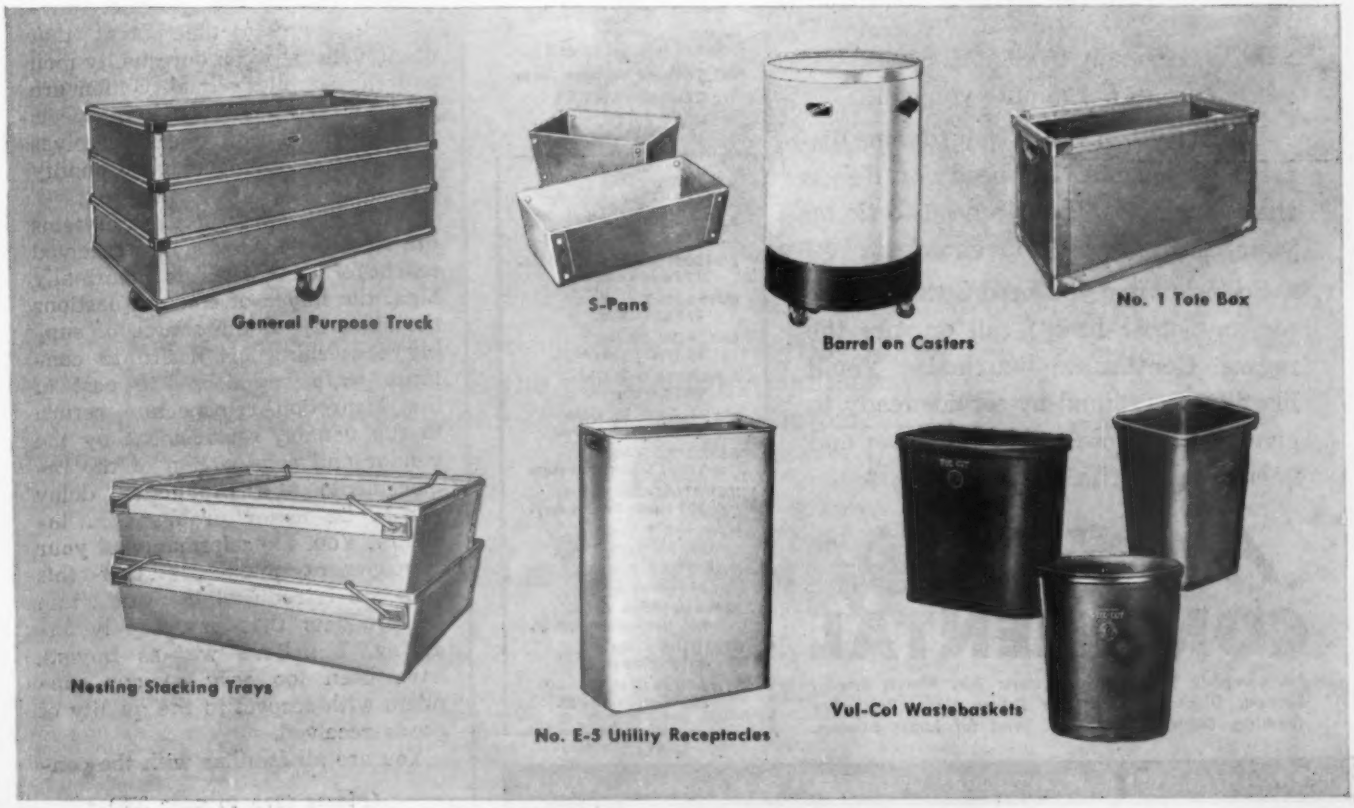
GREAT STRENGTH IS ANOTHER FACTOR Tough, resilient Vulcanized Fibre takes repeated hard blows and endless wear without denting, cracking or breaking. So, materials traveling in Kennett Receptacles get full protection from damage.

ENGINEERED DESIGN IS THE GREATEST ESSENTIAL Materials-handling receptacles should fit the specific job—and Kennett Receptacles do! Kennett Representatives can suggest just the receptacles you need — or build a complete handling system around these versatile carriers.

Shown on this page are a few of the many Kennett Receptacles and Vul-Cot Wastebaskets regarded as *standard in the industry*. Compare them with the receptacles you now use—then write for full information. Our new general catalog is yours without obligation.

Write for Catalog No. E-7. It's full of money-saving suggestions for improving your materials handling system.

NATIONAL
VULCANIZED FIBRE CO.
WILMINGTON 99, DELAWARE



Yes, sir! You can have that Suction Hose by noon today!

Your nearby CONTINENTAL warehouse has it —1½" through 10"

You'll get *fast* delivery when you call any nearby Continental Warehouse listed below. They *all* carry big stocks of Suction Hose—many have both 8" and 10" ready to ship the minute you call.

You have no need to wait for long distance shipments. No need for delays that eat into profits. No need to tie up your capital in costly inventories.

So, next time you need Suction Hose (or any other hose*) call or wire the nearest Continental Warehouse. You'll like this fast, stand-by service ready to give you the hose you *want—when* and *where* you want it.

HOSE by CR-CONTINENTAL

*A complete line for Contractors: Air, Water, Steam, Suction, Discharge and Pile Driver Hose. Protective Clothing, Boots and Gloves. Send for latest catalog.

Tear out this list to call for fast delivery on hose from CONTINENTAL WAREHOUSES

ATLANTA 5, Ga.
477 Eighth St., N.W.
BALTIMORE 1, Md.
122 South Howard St.
BOSTON (Allston 34), Mass.
12 Franklin St.
BUFFALO 3, N. Y.
115 Clinton St.
CHICAGO 10, Ill.
10 West Hubbard St.
CINCINNATI 2, Ohio
49 Central Ave.
CLEVELAND 15, Ohio
2731 Prospect Ave.
DETROIT 27, Mich.
13801 Schoolcraft Ave.
INDIANAPOLIS 2, Ind.
309 North Capitol Ave.
MEMPHIS 3, Tenn.
268 Madison Ave.
NEW YORK 7, N. Y.
81 Murray St.
PHILADELPHIA 6, Pa.
311 North Randolph St.
ST. LOUIS 8, Mo.
4018 Olive St.
SYRACUSE 3, N. Y.
739 Montgomery St.

CONTINENTAL RUBBER WORKS • 1983 LIBERTY ST. • ERIE 6 • PENNSYLVANIA

For More Information Circle No. 311 on Inquiry Card—Page 17

(*Continued from page 274*)

Incorrect promises of delivery seem to be the major cause of complaint. It seems that the salesman, his home office and his internal organization all contribute to this difficulty. Many times, we review delivery information with salesmen or their production personnel and overnight the information regarded as accurate becomes obsolete without any real explanation. It is indeed disheartening to a buyer who has the responsibility of keeping production lines in operation to be constantly afflicted with unreliable delivery data. Much time is wasted by the buyer—phoning, writing, travelling, in an attempt to expedite his products, repeating the process over and over again on the same product all because of a lack of accuracy which is, in many cases, seemingly condoned by salesmen and their companies. You can readily see that the added time and expense of our buying from sources who are not dependable adds materially to the cost of our operation.

Quality

Quality does not necessarily mean the best of its kind but rather the best grade of material to fulfill but not to exceed the requirements of the use for which it is intended. As much as the buyer tries to convey to the supplier the quality requirements of the product purchased, even to the extent that discussions between our quality men and the supplier's quality men are held to review the quality aspects of the part, the buyer still receives too great a volume of poor quality goods.

When on normal production items the rejection rate of goods received reaches a point which is abnormally high, the buyer of course questions the sincerity of the source of supply concerning his desire to continue as a supplier. The cost of first inspection, reinspection, return to the vendor, replacement by the vendor and reinspection of the replacements and production delay get to be major problems in industry. You, the salesman, and your management must see that this situation is reduced to a minimum on products that you supply industry. I believe we, as buyers, have been too easy on our suppliers with respect to the quality of goods received.

You are all familiar with the con-

(*Please turn to page 278*)

STILL TANK?
FULL AUTOMATIC?

RECTIFIERS?
GENERATORS?
CONTROL EQUIPMENT?

Aluminum anodizing?

CHROMIC ACID?
SULFURIC ACID?

INSTALLATION?
ENGINEERING?

At any stage, from planning to production, your problems can *best* be solved by H-VW-M . . . the one company combining complete engineering service with a complete line of equipment, processes and supplies.

H-VW-M

PLATEMANSHIP

Your H-VW-M combination—of the most modern testing and development laboratory—of over 80 years experience in every phase of plating and polishing—of a complete equipment, process and supply line for every need.

HANSON-VAN WINKLE-MUNNING COMPANY, MATAWAN, N. J.

Plants: Matawan, N. J. • Grand Rapids, Mich.

SALES OFFICES: Anderson (Ind.) • Baltimore • Beloit (Wisc.) • Boston Bridgeport • Chicago • Cleveland • Dayton • Detroit • Grand Rapids • Los Angeles • Louisville • Matawan • Milwaukee New York • Philadelphia • Pittsburgh • Plainfield • Rochester St. Louis • San Francisco • Springfield (Mass.) • Utica Wallingford (Conn.)

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1637

INDUSTRY'S WORKSHOP FOR THE FINEST IN PLATING AND POLISHING PROCESSES • EQUIPMENT • SUPPLIES

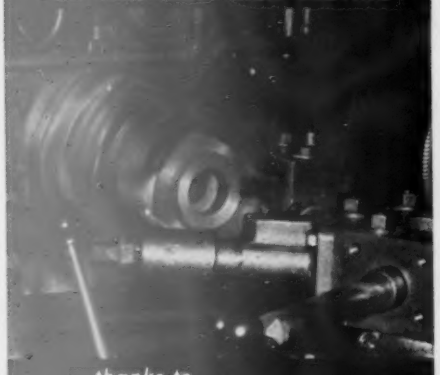
For More Information Circle No. 277 on Inquiry Card—Page 17

AMERICAN
Tubular and Split
RIVETS
. . . In all metals, all styles, for all industrial applications.
Write for price list.
AMERICAN RIVET COMPANY
849 N. Kedzie Ave., Chicago 51, Ill.

BUY AMERICAN...Tubular and Split Rivets...

For More Information Circle No. 313 on Inquiry Card—Page 17

UNIT MACHINING COST CUT 17% ON THIS GRAY IRON CASTING



...thanks to

FERROCARBO®

Users everywhere report similar experiences. In fact, on 67 machining tests in 11 large machine shops, castings of gray iron treated with FERROCARBO averaged 89.5% greater machinability per tool than untreated castings. These premium castings are finer-grained, denser, stronger, yet they COST YOU NO MORE... because your foundryman, using FERROCARBO, makes worthwhile savings in raw material costs.

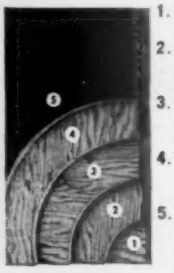
FOR FREE BOOKLET on FERROCARBO, citing actual case histories of faster machining, with longer tool life, write The Carborundum Company, Dept. 32, Niagara Falls, N.Y. 64-62

CARBORUNDUM®

For More Information Circle No. 314 on Inquiry Card—Page 17

The big difference in plywoods:

All exterior fir plywoods are bonded with waterproof glues. The difference—that shows up in use—is in hidden construction *inside* the panel. *Only* Harborite and SUPER-Harbord are made with these 5 important advantages:



1. Only carefully selected veneers are used. Means more durability.
2. Core veneers machine-edged and butted flush. No trouble-making core gaps.
3. Inner core flaws are removed, patched with wood plugs. Solid throughout.
4. Rehumidified to restore natural moisture. Minimizes warping and grain raise.
5. Harborite overlay is hard, smooth, wears like glass. Abrasion and acid resistant. Won't splinter or snag.

If you need plywood for boat hulls or concrete forms, assembly tables or partitions, or any of thousands of industrial uses, specify the best:

SUPER® Harbord
100% waterproof, solid core fir plywood

or

Harborite®
(SUPER-Harbord with tough, resin-impregnated overlays)

Developed in 1938 and manufactured only by

HARBOR PLYWOOD CORPORATION
Aberdeen, Washington

Sales offices or subsidiaries in Aberdeen, Atlanta, Chicago, Cincinnati, Houston, Indianapolis, Jacksonville, Los Angeles, San Francisco, Seattle and Tampa.

For More Information Circle No. 315 on Inquiry Card—Page 17

(*Continued from page* 276)

ditions of sale which your industry expects the buyer to accept. One of these concerns materials rejected after they have been put into the production line. In many cases, the supplier will accept the goods for replacement or for credit but this credit is limited only to the cost of material which was purchased and does not include the high cost of machining or other processing operations which have been performed on the part before it was rejected. Salesmen must realize that when such rejections occur on products they sell, it can be very embarrassing to them and if they are unwilling to come to an agreement with the buyer, they stand to lose prestige and ultimately a good customer.

Service

The service aspect of a salesman's job is one of major importance and if the buyer cannot depend upon service from the salesman, he becomes easily disgruntled with the salesman and his company and will not delay long in finding another supplier. This service aspect is so easily forgotten by many suppliers in the varied industries that we, as buyers, sometimes wonder whether they are in the business to cultivate customers or to discourage customers.

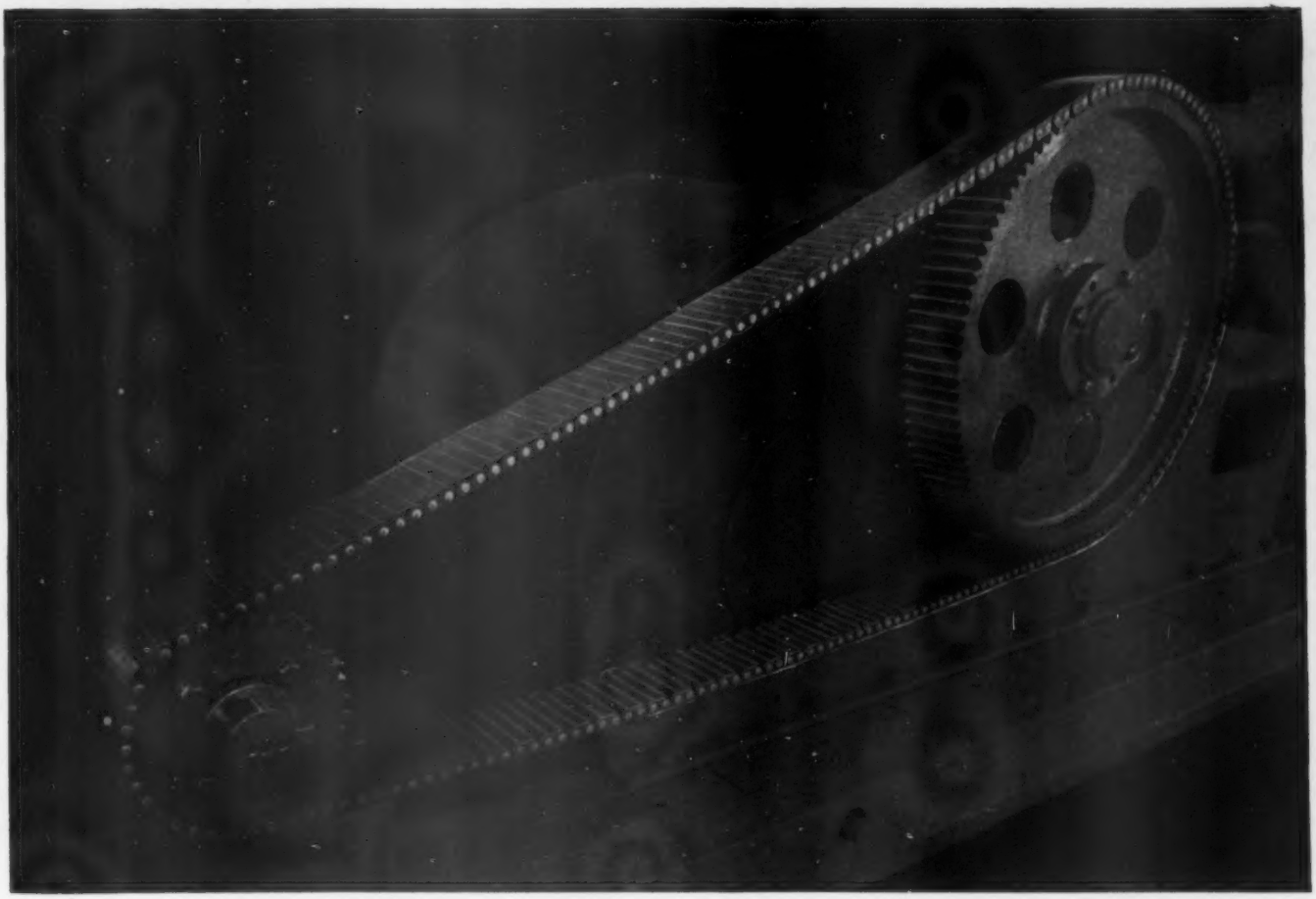
Another complaint of buyers is the lack of interest on the part of the salesman in keeping the buyer abreast of conditions which have an effect upon shipment of the buyer's goods and in turn have an effect on the buyer's customer schedules. Frequently, delays occur within the supplier's plant because of labor shortage, work stoppage, lack of material, high scrap loss or poor follow-up and others. Had the buyer been notified of these conditions or had the conditions been anticipated, he at least would have been aware of conditions. He might even be in a position to assist his supplier in correcting the situation.

Price Changes

Buyers will gripe when prices change without notification. Prices that are negotiated between the buyer and the salesman should be renegotiated between the same two persons before they are changed in any way. Every buyer is interested in the prices of products he buys but this does not imply that he is a price

(*Please turn to page* 280)

Reduce drive operating costs with Morse HY-VO



A HY-VO Drive, 8" wide, transmits 660 hp to Emsco Slush Pump

CHECK THESE HY-VO BENEFITS:

- Longer service life
- Easy to assemble, install, and service
- Speeds up to 8500 fpm
- Transmits up to 5000 hp
- Saves weight and space
- Less vibration, less heat

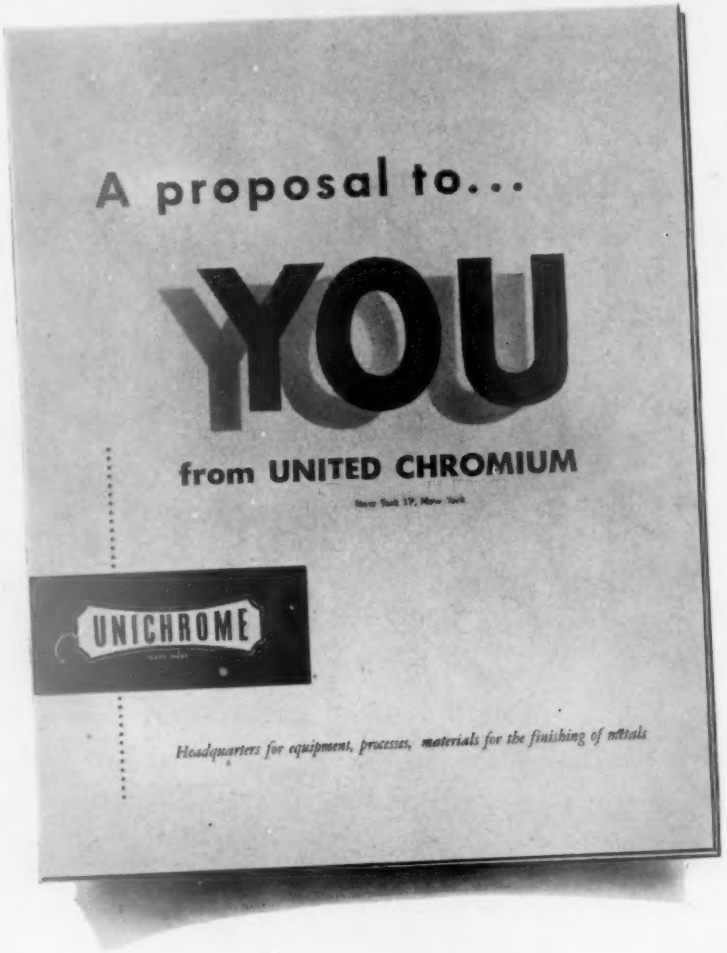
Dependable, economical Morse HY-VO is ideally suited to meet a wide variety of heavy-duty service demands. The high-velocity characteristics of HY-VO make it an efficient, compact drive which can be used either as original equipment or in conversions. In addition, field-proved HY-VO can reduce your drive operating costs by one third. For further information on HY-VO Drives, contact your Morse distributor, or write today to:

MORSE CHAIN COMPANY,
INDUSTRIAL SALES DIVISION,
ITHACA, NEW YORK.

MORSE BW **CHAINS, COUPLINGS, AND CLUTCHES**

For More Information Circle No. 316 on Inquiry Card—Page 17

How to buy
PLATING EQUIPMENT
with assurance it meets your needs



● You can help save time and money in buying new plating facilities and equipment. United Chromium plans and supplies equipment for general plating . . . offering the benefit of years of close working experience with plating department needs. By working with United Chromium, you can be sure you're buying equipment designed to meet your needs for efficiency, economy, long life.

Unichrome equipment includes such typical items as tanks, rectifiers, pumps, filters, anodes, heat exchangers. In short, equipment for complete installations.

We'll be glad to make a proposal on your needs . . . for a specific piece of equipment or a complete plating installation.

UNICHROME Trade Mark **METALLIC and ORGANIC FINISHES . . . EQUIPMENT**

UNITED CHROMIUM DIVISION
METAL & THERMIT CORPORATION

100 East 42nd Street, New York 17, N. Y.
Detroit 20, Mich. Waterbury 20, Conn.
Chicago 4, Ill. Los Angeles 13, Calif.
In Canada: United Chromium Limited, Toronto 1, Ont.

For More Information Circle No. 317 on Inquiry Card—Page 17

(*Continued from page 278*)

buyer. Obtaining and retaining the prices negotiated is a major responsibility of the buyer. I might add that in discussing prices with buyers, be explicit. Buyers just don't like to discuss matters with salesmen who are vague. Salesmen should know prices not merely as a dollar value but something resulting from factors with which they are intimately familiar. Salesmen should know the principal components of the cost of the commodities they are selling and their relationship to each other.

Salesmen should keep their offices and plant organizations advised on buyer's requirements concerning procedure, record keeping, documents which are required, etc., so that the flow of information between the seller and the buyer is not delayed and materials which are delivered to the buyer can be used when needed. Materials purchased for use in the aircraft and the automotive industries are in many cases of such critical nature that documents, such as certified test reports, affidavits and processing procedures are required by the buyer before the material can be used. Buyers complain that even though the order specifies that such documents must be furnished, many times these instructions are not followed. The buyers cannot then release the material for use until the certified information is received. Better coordination in suppliers' plants is necessary to correct this.

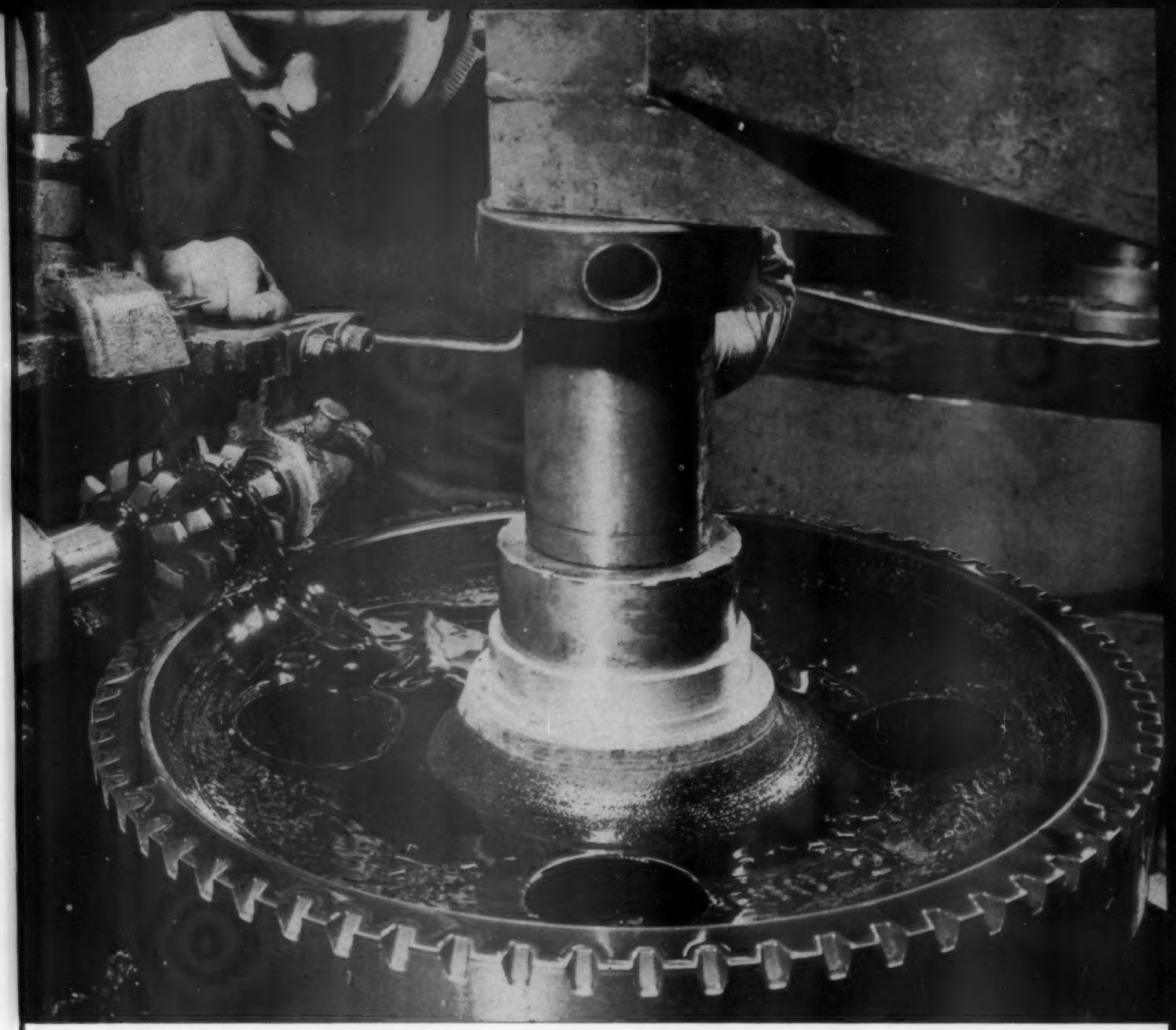
The salesman is a very important link between the buyer and the seller. To maintain a compatible, businesslike relationship, salesmen should spend less time talking about unimportant matters, use good judgment in frequency of calls, conduct themselves as fit representatives of their company.

Salesmen who circumvent buyers to try to sell other plant personnel eventually lose business and lose the respect of the buyer. When this occurs, buyers will generally do everything possible to award business to a competitor.

There is too much emphasis placed on buying the buyers' good will. We think that some salesmen are too free and easy with their expense accounts and that gifts, entertainment, etc., should be reduced to a minimum.

PLEASE USE INQUIRY CARD PAGE 17

For More Information Circle No. 318 on Inquiry Card—Page 17→



Pittsburgh Gear switched to SSW forged blanks... saved 50 minutes machining time, extended cutter life 20%

Switching to SSW forged steel gear blanks in manufacturing mine locomotive drive gears has given Pittsburgh Gear Company, Neville Island, Pa. . . .

- **savings of 50 minutes in machining time.**
- **better performance through extended service life (cutter life increased 20%).**
- **reduced cutter costs.**
- **over-all lower initial cost.**

These benefits are a result of the more uniform internal structure and close dimensional tolerances of Standard Steel blanks. Machining is done on a single setup, at a maximum speed because there's no danger of hard spots and sand porosity as with castings.

Pittsburgh Gear knows their product must take extra-rugged wear in mining operation. In service the continuous starting and stopping of mine locomotives subjects drive gears to severe shock and impact. The denser core and uniform structure of these SSW blanks contribute to longer-lasting, failure-proof life of these gears.

Like Pittsburgh Gear, you can improve your product and cut your costs with SSW forgings. Write today for the new Standard Steel folder on forged weldless rings and flanges. Use the coupon now.

Standard Steel Works Division

BALDWIN-LIMA-HAMILTON

Dept. 8536, Standard Steel Works Division
Baldwin-Lima-Hamilton Corporation, Burnham, Pa.

Please send me new Standard Steel Works folder containing detailed information on Forged Weldless Rings & Flanges.

Name_____ Title_____

Company_____

Address_____

City_____ Zone____ State_____

LETTERS . . .

CLASSIFICATION CODE FOR MATERIALS

We would appreciate information explaining numerical coding systems for identification and classification (sizes, types, composition, etc.) of purchased materials and parts on perpetual inventory cards, and the application of standard nomenclature to inventory items of a medium sized manufacturing company. Works such as the Department of Commerce's "Standard Commodity Classification, Volume I, Standard Classified List of Commodities, Technical Paper No. 26" are too voluminous for our use.

B. Riha, Pur. Agt.
Igoe Brothers, Inc.
Newark, N. J.

● See "An Identification Numbering System for Purchased Materials," by Philip J. Callan, in the January 1954 issue of PURCHASING, page 97. This article describes the code developed and used at Eastman Kodak Co.—Ed.

MACHINE TOOLS ON LEASE

It is my understanding that several manufacturers of new machinery such as lathes, milling machines, etc., are putting these machines on the market on a rental basis with all or part of the rental applying to the purchase price if purchased within a specified length of time. If this information is correct, do you have any listing of companies that are supplying new machinery in the manner described?

P. B. Gross, Buyer
Bendix Aviation Corp.
York, Pa.

● Leasing arrangements on machine tools are of two kinds. One is a straight rental arrangement; the other is a leasing arrangement with option to buy as expressed in this inquiry, applying the rental payments on the purchase price. To the best of our information, the leading financial firm handling such arrangements for the machine tool builders is CIT Corporation. A list of machine tool builders that we know have these arrangements includes:

The Bullard Company
Cincinnati Milling Machine Co.
Gisholt Machine Co.
Jones & Lamson
Kearney & Trecker
Lodge & Shipley
Monarch Machine Tool Co.
Van Norman Machine Tool Co.
Warner & Swasey

We are certain that this list is not complete. We believe that most of the machine tool builders have an arrangement of this kind or are considering one. Furthermore, we are informed by CIT that the machine tool dealers themselves have financing arrangements similar to the above, so that with this situation practically any machine handled by dealers can be rented or leased on terms comparable to those mentioned.

The Purchasing Opinion survey in our February 1954 issue disclosed that 34% of the companies reporting were leasing capital equipment at that time and that about half of these were planning to acquire additional equipment on a lease basis. Of those who were not then leasing, 12% were planning to do so. About 43% of the buyers reported an increase in the number of equipment suppliers offering lease or rental plans.—Ed.

THE GUARANTEED ANNUAL WAGE

If the guaranteed annual wage were generally applied, it would stabilize industry for an indefinite period, but later the cost of production would rise further due to the constant or fixed labor cost factor. After this period, there would be a drop in sales in some cases due to higher selling prices, and panic price cutting by the minority seeking to keep their contracted labor staff busy producing. Other industries would be cautious about entering into such agreements unless the Government—or somebody—would guarantee or subsidize sales of their products so that these guaranteed labor costs can be met.

We would thereby create a situation similar to that of Great Britain under its Labor Government, which was due to the same Utopian policies under which they had to look continuously for help elsewhere. In our plight, whom could we turn to for such assistance?

L. B. K.
Chicago, Ill.

USERS OF SAWDUST

The article "Pick the Right Adhesive" by A. Wyn Williams (April 1955 issue, page 81) interested me very much. The paragraph of particular interest to me described the picture at the top of page 82: "Sawdust and other scrap materials were once considered sheer waste. Modern adhesives put them to useful work as the material for fabrication of pin balls, toilet seats, chip cores for flush doors, and a variety of other products." I would appreciate it very much if you can send me a list of companies which utilize sawdust in the manufacture of their product.

H. A. Maier, Buyer
The Marley Company
Kansas City, Kansas

● The process referred to is relatively new, and we do not have a list of users. Information concerning the process may be obtained from the Chemical Division, Borden Co., 350 Madison Ave., New York., N.Y., which pioneered the development of Cascophen glue which makes the technique possible.—Ed.

P.A. & ENGINEER

Please send me twelve reprints of the article "Let's Get Together" by Nelson J. Gibbins (February 1955 issue, page 69). This really fits our situation like a glove, and I feel it will be extremely profitable.

W. M. McBee, Pur. Agt.
Helipot Corporation
So. Pasadena, Cal.

BUILDING YOUR OWN PRICE INDEX

In a recent address on "Forecasts: How to Use Them", Paul V. Farrell said, "A helpful technique is building your own price index. PURCHASING Magazine will send you an article showing how to do it." I would appreciate receiving a copy of this article.

J. F. Somerville, Dir. of Pur.
Thomas Industries, Inc
Fort Atkinson, Wis.

Would appreciate a copy of the article "How to Build Your Own Price Index."

John J. Miller
Berkeley, Cal.

Would you kindly forward a reprint of the article "How to Build Your Own Price Index" if it is still available.

William F. Pritchard
The Carborundum Metals Co.
Akron, N. Y.

● Copies of the article have been furnished to these and other readers. We regret to advise that the demand has now exhausted our supply. For readers who have kept their files of PURCHASING for reference, the article appears on page 97 of our January 1952 issue.—Ed.

Get better printed circuits . . . lower costs . . . fewer rejects

with NEW C-D-F METAL CLADS

All manufacturers of metal clad stock for printed circuitry have made considerable progress in improving their product—a material with a metal foil surface bonded to a nonconducting base. How this has been done by one leading manufacturer, the Continental-Diamond Fibre Company, illustrates some of the problems involved in buying this type of material and in understanding its design potentials.

C-D-F CONSOLIDATED GRADES

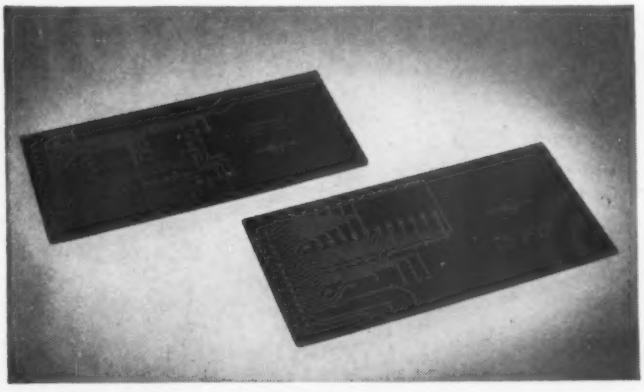
At first, small test lots of Dilecto laminated plastic with copper surfaces were made. Almost every core material was used. Finally the number of practical grades for printed circuit work narrowed down to these few grades which retained to a large degree the inherent electrical qualities of their base material and resin at high temperatures:

XXXP-26 COPPER CLAD—PAPER BASE WITH PHENOLIC RESIN
A laminate with excellent electrical and mechanical properties. High moisture resistance and dimensional stability. Recommended for applications where high heat and high insulation resistance plus low dielectric loss under high humidity is needed. Low cold flow characteristics. Can be hot punched to ⅛". Good flexural strength. Natural green color.

This is one of the *improved C-D-F Dilecto laminates.* Advances in resins and manufacturing techniques make this grade almost homogeneous, with improved impregnation of the filler. Thorough impregnation eliminates entrapped moisture and air, giving greater moisture resistance and better dielectric properties.

Any metal clad is no better than its base and the care taken in laminating. With the cost of material high, compared to labor and inspection, the purchase of a *uniform* metal clad material, like this C-D-F grade, becomes vital.

XXXP-24 COPPER CLAD—PAPER BASE PUNCHING GRADE WITH PHENOLIC RESIN
Similar to grade XXXP-26 in electrical and moisture resistance properties, but not quite as strong mechanically. Equal cold flow and punching characteristics. Natural brown.



GB-181E COPPER CLAD—GLASS FABRIC WITH EPOXY RESIN
The new C-D-F epoxy grade uses a glass fabric laminate with a copper foil surface on one or both sides. Epoxy resin laminates possess very high mechanical strength (tensile and flexural), along with good dielectric strength, both perpendicular and parallel to laminations. Used in government and commercial equipment, epoxy metal clads are superior to phenolic laminates in moisture absorption and temperature resistance. Both bond and hot solder tests are rated excellent.

GB-116T COPPER CLAD—GLASS FABRIC WITH TEFLON RESIN
A glass base laminate using duPont's tetrafluoroethylene resin, Teflon, for outstanding resistance to high heat with extremely low dielectric loss properties. A fine weave continuous filament glass fabric cloth is used for superior mechanical strength and good machining qualities. In spite of its high cost, this C-D-F grade has demonstrated that it can save money and do a job that no other single material can in microstrip high-voltage, high-frequency circuit elements. Remember, C-D-F is a major supplier of sheets, tapes, rods, tubes of Teflon, has valuable experience in its manufacture and fabrication. Write for samples.

C-D-F INCREASED BOND STRENGTH

By developing a special thermo-setting adhesive particularly suited for metal clads, C-D-F was able to increase the bond strength of their laminates considerably above their original figures. Bond or peel strength, the amount of pull required to separate the foil from the core material, is one of the most important physical properties. Therefore, the purchaser should compare his source of supply with these C-D-F average test values:

BONDING STRENGTH—FOIL TO LAMINATE

MATERIAL	Average or Typical Value Lbs. pull per 1" width of foil to separate
XXXP-24 or XXXP-26 plus 0.0014" copper	5 to 8
XXXP-24 or XXXP-26 plus 0.0028" copper	7 to 9
GB-181E plus 0.0014" copper	15 to 18
GB-116T plus 0.0014" copper	6 to 9

These values are based on tests at prevailing room temperature (20-30°C.)

C-D-F INCREASED HEAT RESISTANCE

Special efforts by C-D-F technicians to increase the heat resistance of all C-D-F Metal Clads have resulted in certain special grade variations able to withstand higher soldering temperatures without damage. As production methods change, C-D-F offers materials to meet your requirements.

NOW . . . HOW ABOUT YOUR STORY?

Notice how we have talked about C-D-F and what we have done to improve quality and uniformity of metal clad products. Much of this has been accomplished with the guidance and cooperation of leading users of printed circuit stock. No one company knows all the answers . . . but C-D-F, a big reliable source of supply, can help you get better printed circuits . . . lower costs . . . fewer rejects. Look up the address of your nearest C-D-F sales engineer in Sweets Design File, write us for samples you can test in the lab and on the production line, technical bulletins, help on your specific project. We want to work with you!

WRITE FOR NEW C-D-F DILECTO CATALOG

CDF Continental-Diamond Fibre

CONTINENTAL-DIAMOND FIBRE DIVISION OF THE BUDD COMPANY, INC.

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Advertisement

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When you have a transformer problem, call on

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ELECTRONICS AND TRANSFORMER CORPORATION

Dept. P-7, Caledonia, N. Y.

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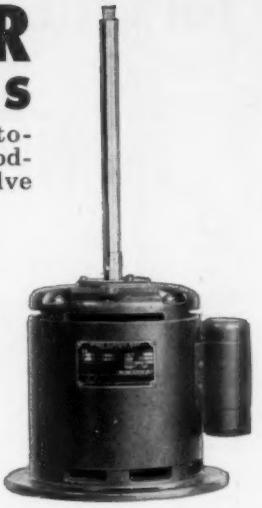
DOERR MOTORS

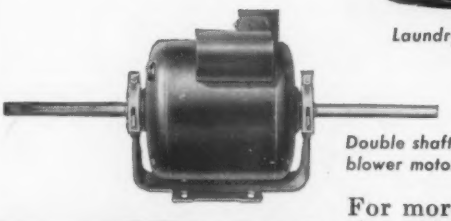
go a long way toward helping Product Designers solve their problems.

Coolant pump motor

If your design needs include special mountings of any type, make use of our wide experience in this field.



Laundry extractor motor



Double shaft blower motor

DOERR
Electric Corporation
CEDARBURG, WISCONSIN

For more information write for Bulletin 100, which shows many of the special and standard designs available.

Electric Motors from 1/30 to 5 hp. Standard, or designed to your specifications.

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Any Quantity
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FOR SALE
2400 TONS of COKE

The coke is at our Gas Plant at Marquette, Michigan

The following analysis was made by the Michigan College of Mining and Technology at Houghton, Mich.

Moisture	0.28%
Ash	7.65%
Volatile	0.42%
Fixed Carbon	91.65%
Sulfur	0.45%
Heating Value	12.440 B.T.U./lb.

This appears to be an excellent quality of coke; low in ash, volatile and sulfur.

Bids are being accepted on entire stock pile.

Seller will load onto Gondola cars. Price to be F.O.B. Marquette, Mich.

See: H. D. Roush
Purchasing Agent
Michigan Gas and Electric Co.
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OF TORQUE

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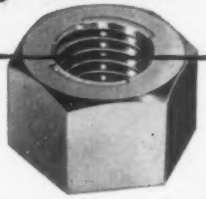

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NO EXCESS COST!
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"FEW OLDER IN EXPERIENCE... NONE YOUNGER IN FACILITIES AND DESIGN"

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GENERAL ELECTRIC

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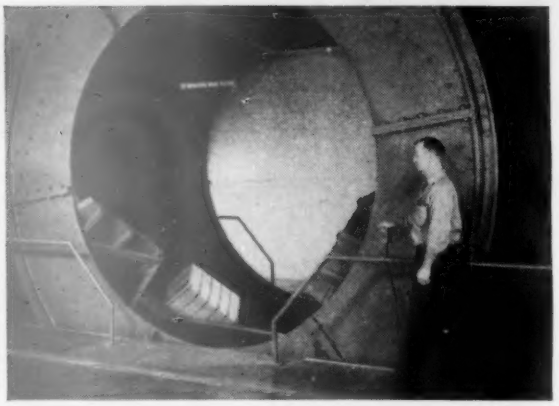
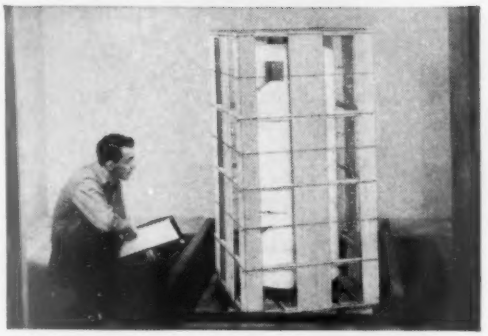


2.

1. Incline impact tester
2. 14′ revolving drum tester
3. Vibration tester



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General Box

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Here are a few parts turned out on high-speed multiple-spindle automatic screw machines in quantity. Some are complete as they drop from the machine.

Others require additional finishing operations, like the largest piece, a special 10-32 collar screw with head formed and flattened on a punch press, *triple-lead* roll-threaded and then copper plated.

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For fast, reliable delivery, precision quality and low cost, it pays you to put WESTERN on your production team.

Why not send us your blueprints for quotations . . . today?

Western Automatic
Machine Screw Company

378 Woodland Ave., Elyria, O.

Precision Parts and Assemblies Since 1873

For More Information Circle No. 325 on Inquiry Card—Page 17

HOOD makes all types of WORK GLOVES

7705
NEOPRENE COATED
Heavy duty coated without loss of flexibility.

PV-98
PLASTIC COATED
Standard weight, abrasive resistant, liquid-proof.

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NEOPRENE COATED
Industrial weight; curved, natural-fit fingers.

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a division of the B. F. Goodrich Company

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For More Information Circle No. 326 on Inquiry Card—Page 17

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East of Denver and El Paso
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31″ (No. 1100)
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DAZOR FLOATING LAMPS

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Quick Prices... Quality Production
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Add Fame to Your Name

For More Information Circle No. 328 on Inquiry Card—Page 17

This "free" file-folder kit will show you...

How to modernize your shipping operations

NOTHING LIKE IT EVER BEFORE! Not a catalog of products, but a file-folder of systems created to streamline shipment addressing and marking, and simplify shipping paperwork.

Cost-conscious firms have discovered that the key to efficient shipping and packaging operation is a fast, low-cost system for addressing and marking containers. That's exactly what this File-Folder Kit is about.

Described and illustrated are systems that make shipment addressing and product identification marking faster, cheaper and more accurate. You'll see how addressing operations can be tied-in with the preparation of shipping paperwork, and how the entire chain of events leading to the addressing and marking of your shipments can be streamlined. And there are also product samples that you can try out!

Never before has so much factual information been offered on this important subject—and it's all yours without charge or obligation. Make sure you get your Weber Label and Marking Systems File-Folder Kit right away!

Weber label and marking systems

Division of Weber Addressing Machine Co.
Mount Prospect, Ill.
Phone: CLearbrook 3-2405

Weber Label and Marking Systems
Dept. 5-G Mount Prospect, Illinois

☐ Please send me a Label and Marking Systems File-Folder Kit.

☐ Also, we would like to talk to your representative as soon as possible about improving our shipment addressing and marking operations, and simplifying our paperwork.

Company_____
Individual_____ Title_____
Address_____
City_____ Zone____ State_____

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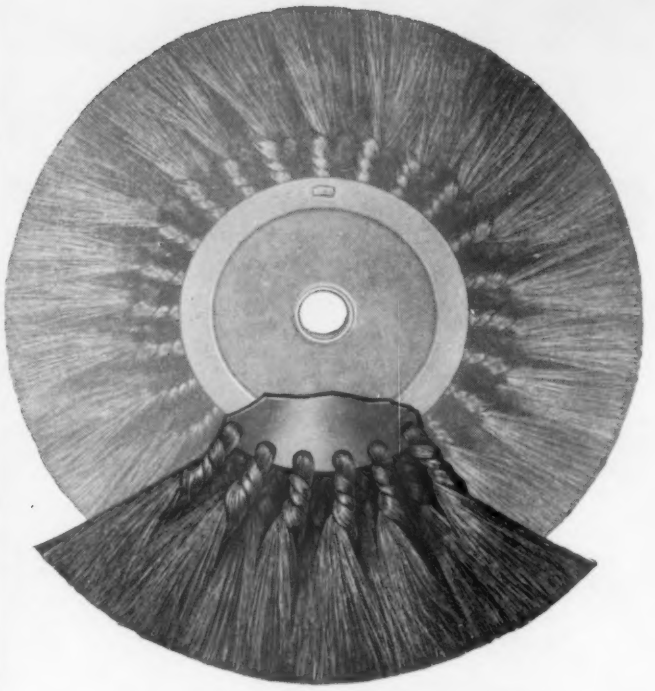

How Pittsburgh knotted brush construction provides

- *Better Balance*
- *Uniform wear*
- *Better cleaning*
- *Longer equipment life*

Because of their construction, Pittsburgh "Lightning" knotted sections have *exactly the same number of wires in every knot.* As a result, you get a brush with perfect balance—one that will wear uniformly and cause less bearing—destroying vibration in the machine that drives it!

What's more, the special type of wire used in these knots is the fastest cutting, with the longest life, that can be produced. Built for the toughest applications, "Lightning" brushes are perfect for cleaning welds, removing scale or rubber, or cleaning parts where penetration brushing is needed.

This is just one example of superior Pittsburgh construction, engineered for both general and specific applications. For details of the complete line, write for free Catalog No. 54-W. Address: PITTSBURGH PLATE GLASS Co., *Brush Division,* Dept. L-7, 3221 Frederick Ave., Baltimore 29, Maryland.

PITTSBURGH *Power Driven* **BRUSHES**

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PITTSBURGH PLATE GLASS COMPANY

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Now Offers You The

LARGEST DELIVERABLE SELECTION

more than 22,000 SIZES, TYPES AND SPECIFICATIONS
A.S.A. & ACE STANDARD DRILL BUSHINGS

Regular, Serrated, Castable,
Micro and Super-Sizes . . .
plus Specials

Your "Specials" may be ACE "Standards"—ask for them!

Always Specify ACE--"STANDARD OF THE INDUSTRY"

Write for Catalog "H"

ACE DRILL BUSHING CO., INC.
5407 Fountain Ave., Los Angeles 29, Calif.

For More Information Circle No. 331 on Inquiry Card—Page 17

The Bigger Difference Brings BIGGER TIME SAVINGS!

YOUR BRIGHTBOY DISTRIBUTOR CAN NOW FURNISH RUBBER-CUSHIONED STOCK ABRASIVES MATCHED TO JOB REQUIREMENTS

These two widely-different Brightboy Wheels may look alike! Each has a wide and different application. ***Either one could save you as much as 50% in finishing time!***

One of these wheels is compounded with SILICON CARBIDE, the other with ALUMINUM OXIDE. In *both grains* you have a wide selection of UNIFORM TEXTURES AND GRAIN SIZES RANGING FROM EXTRA FINE TO EXTRA COARSE, IN SOFT, FIRM AND TOUGH RUBBER BINDERS.

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WELDON ROBERTS Brightboy RUBBER CUSHIONED ABRASIVES

BRIGHTBOY INDUSTRIAL DIVISION
WELDON ROBERTS RUBBER CO.
95 North 13th St. Newark 7, N.J.

America's Pioneer Manufacturer of Rubber-Bonded Abrasives

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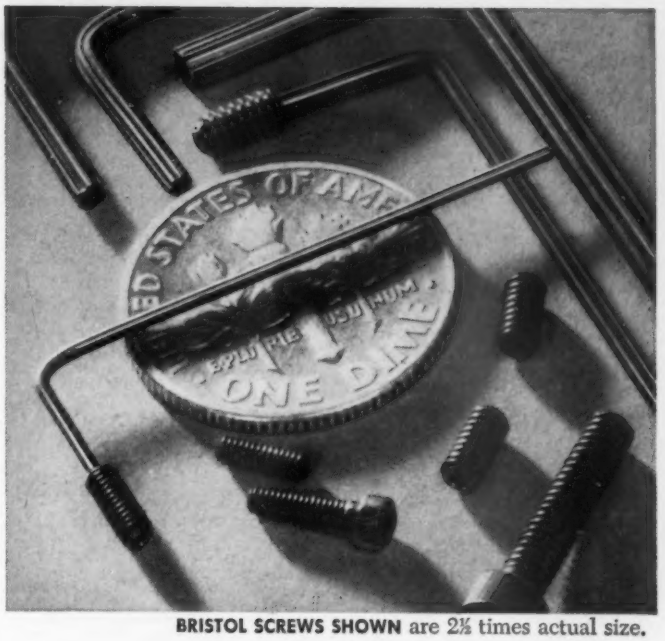

BRISTOL SCREWS SHOWN are 2½ times actual size.

Miniature Socket Screws Down to No. 0 for Every Application

These Tiny Socket Screws are Standard with Bristol in sizes from No. 0 and up in Bristol's Hex and Multiple-Spline Socket Set and Cap Screws – in alloy and stainless steel.

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Bristol's Hex Socket Screws | Bristol's Multiple-Spline Socket Screws

Standard in sizes as small as No. 0 in Alloy Steel and Stainless Steel.

BRISTOL'S SOCKET SCREWS

THE BRISTOL COMPANY, Socket Screw Division, Waterbury 20, Conn.

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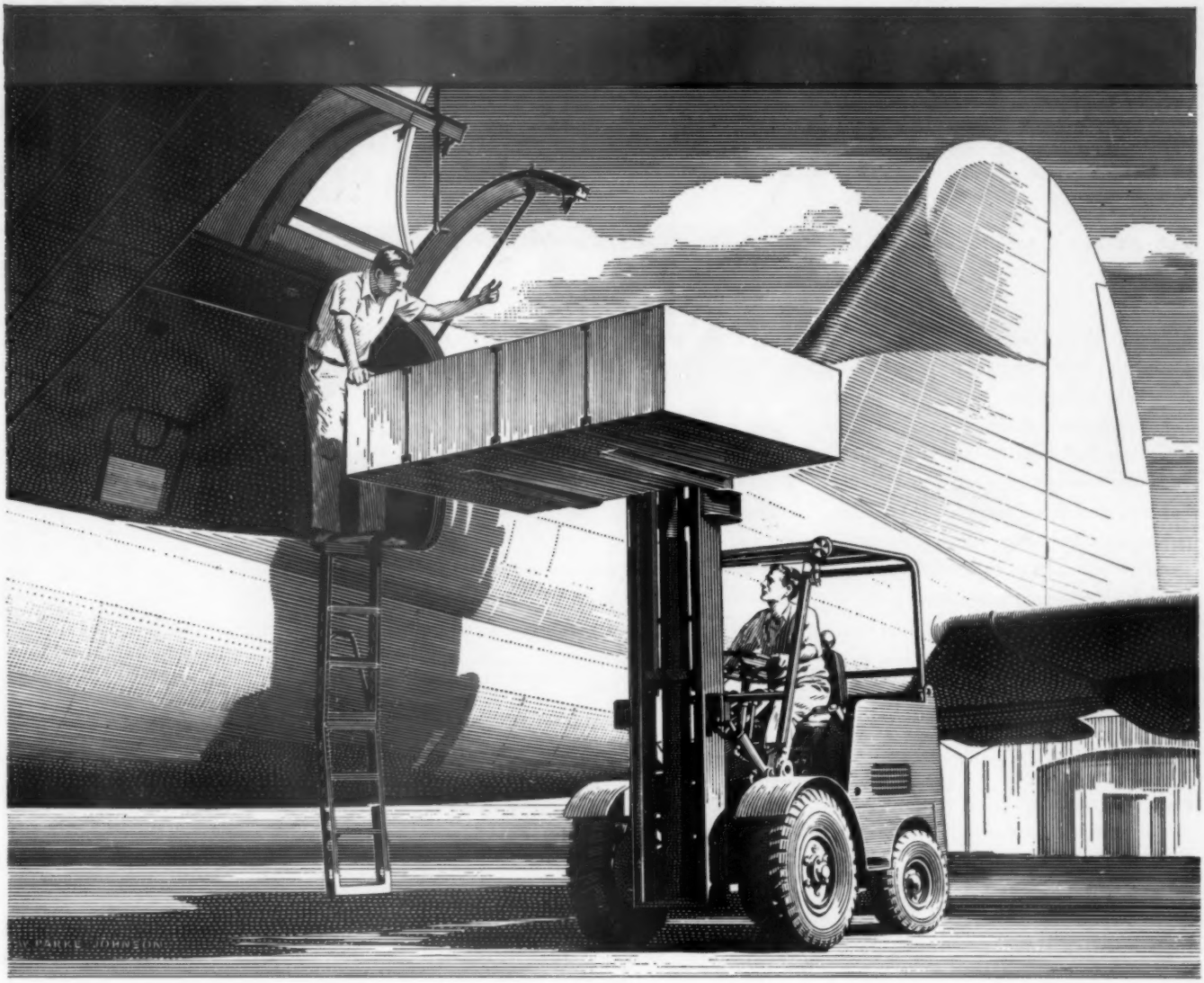

A PRODUCT WINS ITS WINGS

Gaylord Boxes

More and more products are able to take to the air these days, thanks to lighter, stronger, easier-to-handle Gaylord Containers. Meeting the special requirements of air shipment has long been a challenge to Gaylord engineers. Their research, in cooperation with leading airlines, has opened up many new opportunities for air shippers.

You can profit by this progress in packing. Your nearby Gaylord office can show you some interesting case histories.

CORRUGATED AND SOLID FIBRE BOXES • FOLDING CARTONS • KRAFT PAPER AND SPECIALTIES • KRAFT BAGS AND SACKS

GAYLORD CONTAINER CORPORATION ★ ST. LOUIS

SALES OFFICES FROM COAST TO COAST ★ CONSULT YOUR LOCAL PHONE BOOK

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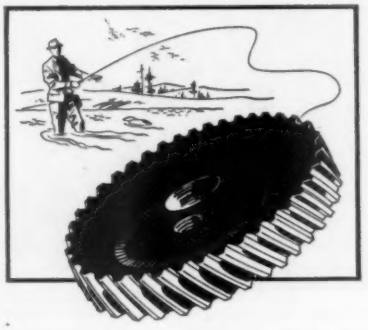
BUSINESS IN MOTION

To our Colleagues in American Business ...

It is a characteristic of American companies that they constantly seek to improve their products; this is in part responsible for the amazing strides made by industry. Revere is glad to aid in this endeavor through its Technical Advisory Service, and its Research Department, particularly for firms whose need for research is not such as to warrant purchasing costly laboratory equipment. A recent problem presented to us came from a maker of fishing reels. He had been cutting gears out of free-cutting brass, in order to achieve the machining economies such material offers.



This brass is widely and successfully used in gears for clocks, meters, and similar instruments. However, experience proved that a fishing reel, which is operated at various speeds and loads, presents a quite different service. Revere was asked to suggest a metal that would be more suitable in this application.

The Technical Advisory Service at once reported that either naval brass or aluminum silicon bronze would last longer. However, in order to determine the relative merits of the two, the Revere Research Department was asked to make tests. Gears of both metals were installed in reels, and a motor-driven machine was rigged to provide an accelerated wear test. Each gear was run at 430 r.p.m. and at 100 r.p.m., at zero tension on the line, and at 1, 2, 3, and 4 pounds tension. After each run the gears were removed, cleaned, examined, measured and photographed. The reels were then reassembled, lubricated, and the next run started.

The results were impressive. After the gears had gone through 186,727 revolutions it was felt unnecessary to proceed further. Both reels were still fully usable. The naval brass was somewhat more worn than the aluminum silicon bronze, however, it certainly was evident that naval brass would be satisfactory. The reel maker was determined to offer the best he knew how to make, and selected the more expensive aluminum silicon bronze. He knows conclusively now that his reels will give long service, enduring satisfaction, and will protect his reputation and help his business grow.

If you have questions as to the best material or materials for your product, no matter what it is, and do not have a modern research laboratory, why not ask your suppliers for help? Some may have an immediate answer; some may wish to test alternatives. You will benefit either way, and make faster and surer progress in your search for improvement.

REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

Executive Offices: **230 Park Avenue, New York 17, N.Y.**

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LEADERSHIP *Backed by*
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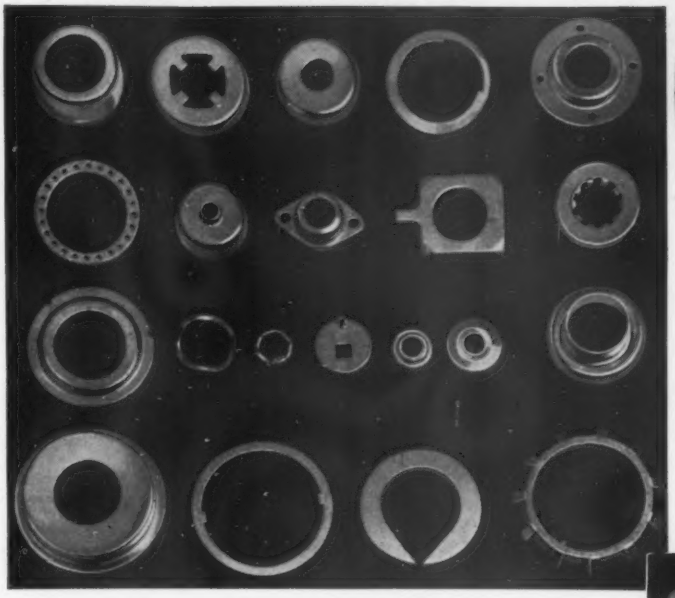
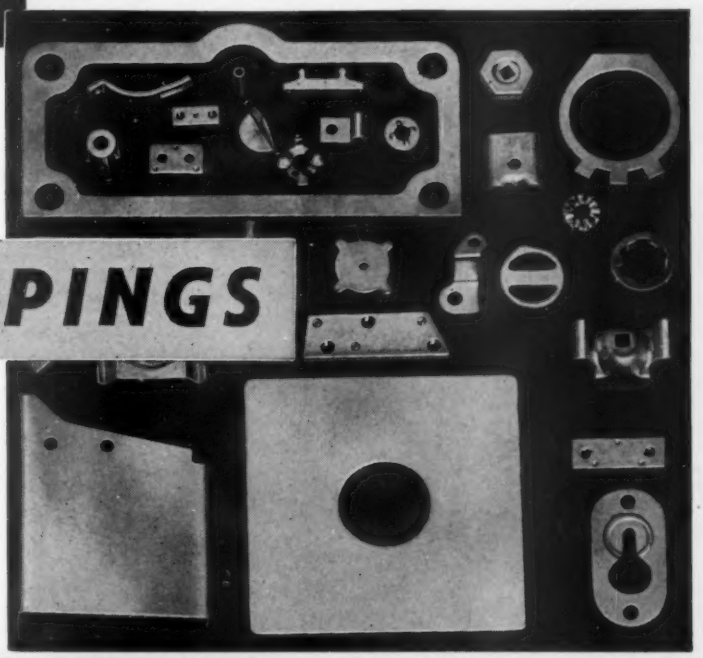


SINCE 1887

In terms of "satisfaction to the customer" the dominant leadership of Wrought Washer Mfg. Company in this specialized field represents not only a thoroughly dependable source of supply to meet all your requirements for Standard and Special Washers, but of equal importance, it carries with it a wealth of technical know-how dealing with a wide variety of production and design problems . . . available to you as a gratis service. More than 25,000 sets of dies "in stock" at our plant offer the greatest range of selectivity.



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Our equipment for handling contract production of stampings includes presses for blanking, forming, drawing, shearing and extruding. In many cases it is possible to produce stampings at a lower cost than they can be produced in your own plant, with our own equipment. Our own tool and die-making shop enables us to make up the necessary tools to fit your specifications.

We are equipped to furnish stampings in any desired materials and finishes, ranging in size from small parts to large heavy-gauge pieces. Our engineering staff will be glad to co-operate with you in every way consistent with economical and efficient production.

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Send us your blueprints for quotations on special washers and stampings made to your individual specifications. Write for copy of 76-page Catalog "30" with tool list and complete round washer specifications.

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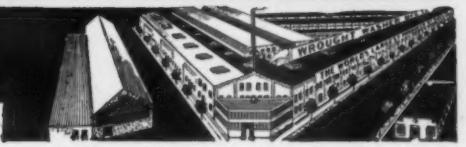
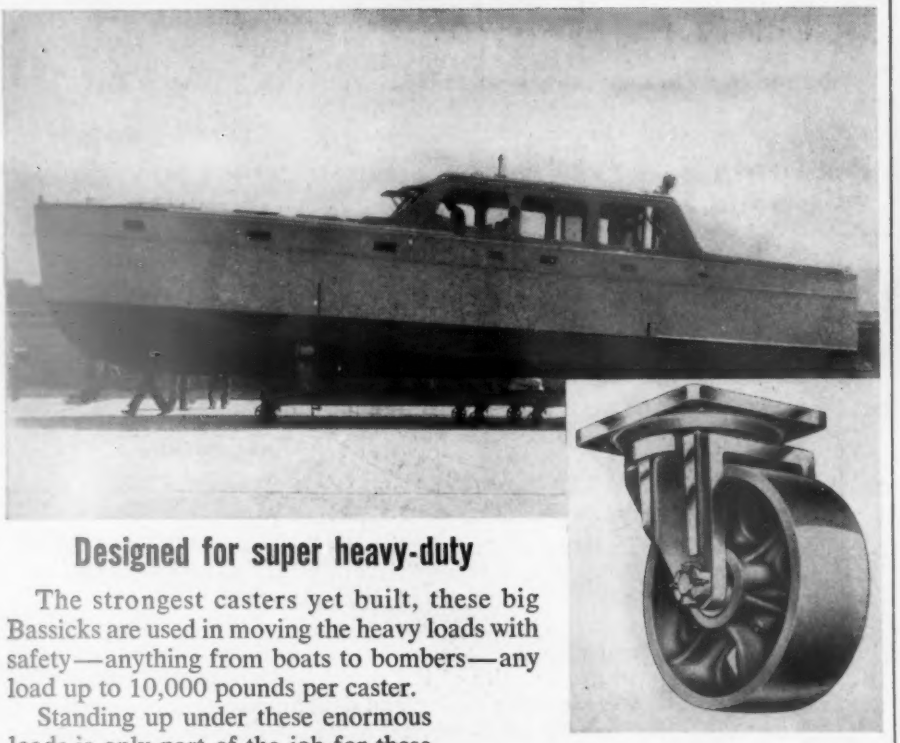


For More Information Circle No. 336 on Inquiry Card—Page 17

MATERIALS-HANDLING NEWS

★ Panel Discussions by Bassick, World's Largest Manufacturer of Casters and Floor Protection Equipment ★

Bassick casters handle up to 5 tons each



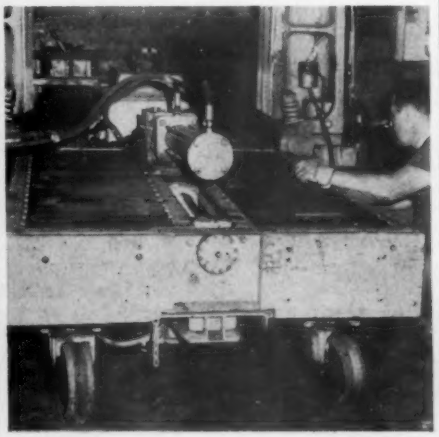
Designed for super heavy-duty

The strongest casters yet built, these big Bassicks are used in moving the heavy loads with safety—anything from boats to bombers—any load up to 10,000 pounds per caster.

Standing up under these enormous loads is only part of the job for these Bassick big boys. With the finest heavy-duty precision bearings, they move and swivel under their five-ton burdens easily, take shocks without a whimper.

Machine tools of motion

That's what you'll call these Bassick Super Heavy-Duty Casters when you get a look at their construction features. Top plates and king pins are one-piece steel forgings. Horns and wheels are high-tensile malleable castings accurately machined to close limits. They're available with 8 in. and 10 in. wheels, standard tread or with V-grooves for use on angle track. The photo below shows hydraulic die wagon used by Fairchild Aircraft to handle overweight press dies.



Production rolls

Engine stands on casters

Easy-rolling double wheel Bassick Casters on these roll-over engine build-up stands speed production in the final assembly area at this Stratford, Connecticut plant of the Lycoming Division of AVCO Manufacturing Corporation.

The race isn't always to the swift

The casters on this injured turtle put us in mind of Aesop's old fable about the tortoise and the hare — and modern materials-handling.

The race *isn't* always to the swift. It's reliability that paid off for the tortoise against the hare — and it's reliability that makes Bassicks pay off against lesser casters.

Bassick casters, remember, have earned their keep in thousands of plants . . . on the toughest jobs. They'll help you save space, reduce costs, eliminate heavy physical labor, and increase your plant's capacity.

How your Bassick distributor can help

Make your industrial distributor a part of your materials-handling team. Two jobs he can do for you:

He'll keep the products you need flowing—from his stockroom—swiftly and economically into your plant.

He'll also show you new ways Bassick casters can help solve materials-handling problems. He's up on the latest improvements in equipment design, handling methods, new production concepts.

THE BASSICK COMPANY
Bridgeport 2, Conn.
In Canada:
Belleville, Ont.

Bassick
A DIVISION OF
STEWART SW WARNER
MAKING MORE KINDS OF CASTERS...MAKING CASTERS DO MORE

For More Information Circle No. 337 on Inquiry Card—Page 17

It's O.K... **I've got the FORT HOWARD PAPER TOWELS!**

If you want a paper towel that takes the drip out of a dunking, rely on Fort Howard Paper Towels—because Fort Howard's Stabilized Absorbency keeps paper towels fresh and fully absorbent regardless of towel age.

That's why you can buy Fort Howard Towels in economical quantities and know the last case will be just as absorbent as the first. And remember, only Fort Howard offers the 18 grades and folds that assure low-cost user satisfaction for *every* type of washroom.

Call your Fort Howard distributor salesman today . . . he has the towel to fit *your* needs!

FORT HOWARD PAPER COMPANY, GREEN BAY, WISCONSIN

For 36 Years Manufacturers of Quality Towels, Toilet Tissue and Paper Napkins

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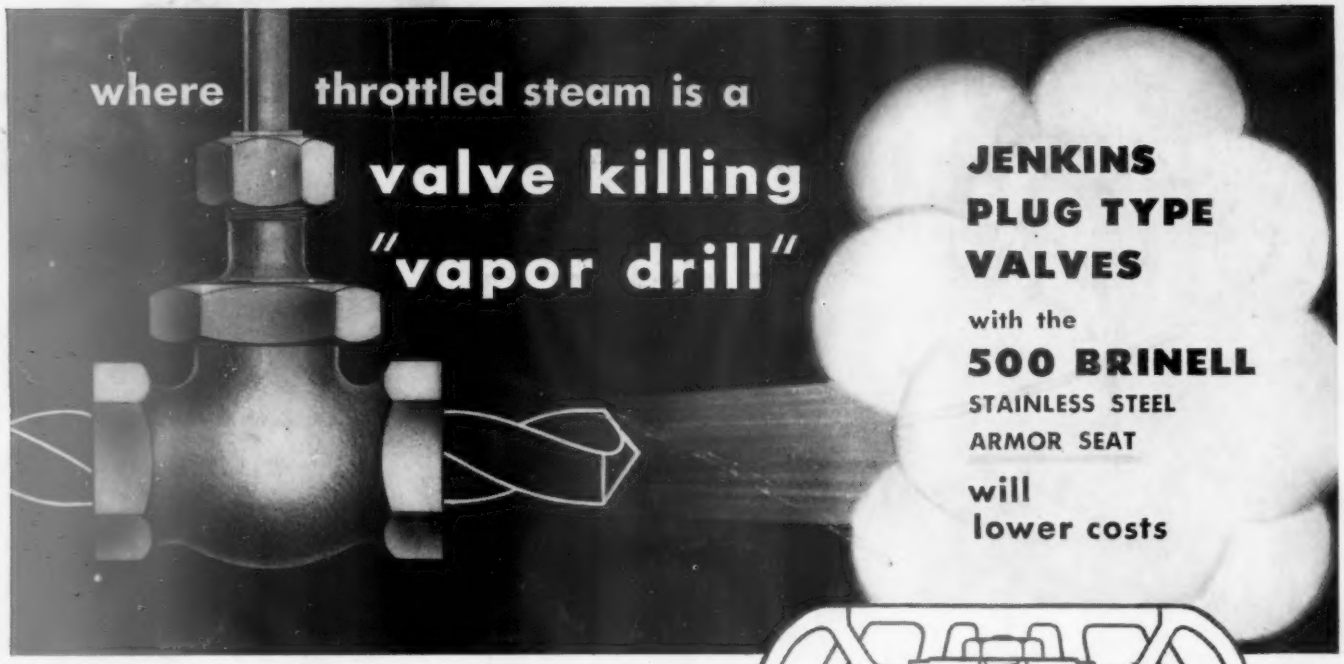


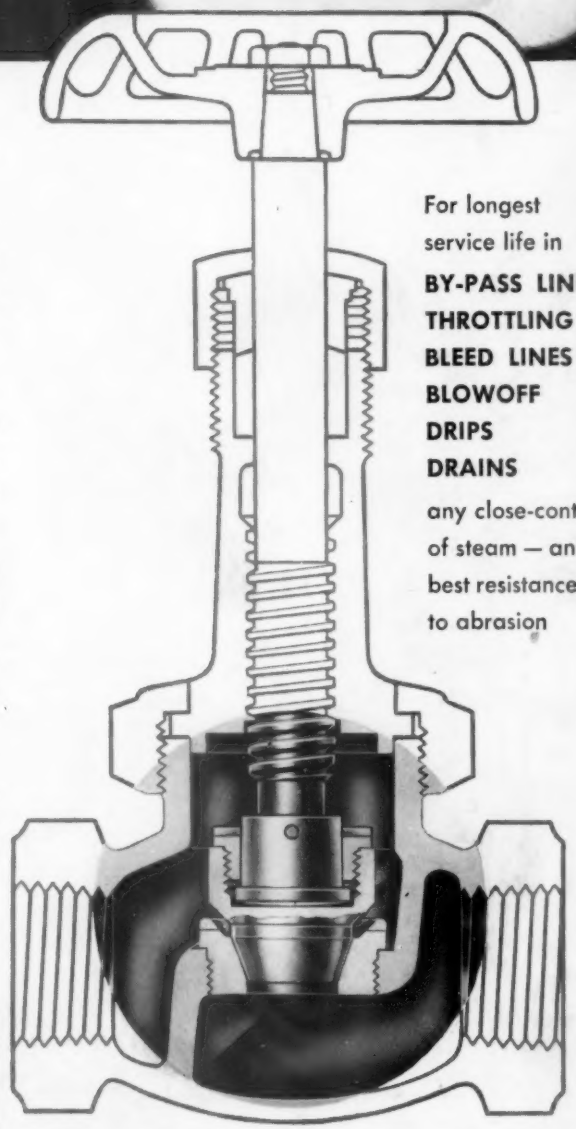
Closely regulated steam erodes grooves in seating units and drastically cuts service life of ordinary valves.

Jenkins Plug Type Valves have been engineered in every detail for maximum wear in such valve-killing service. The stainless steel Armor Seat defies the "vapor drill", and Jenkins quality throughout gives them top rating for wear-proof and trouble-proof perfomance.

Make you own test . . . in your toughest steam service . . . or anywhere that abrasion or erosion causes frequent valve failure. Compare, part for part, with any similar valve. You'll find that, again, Jenkins *extra value* pays off in longer life and lower maintenance cost.

Plug and seat ring are Jenkins JX500, a Stainless chromium alloy steel made to Jenkins high strength specifications, heat-treated to 500 Brinell. Seating surfaces are super-hard and mirror-smooth, offer highest resistance to galling, cutting, abrasion, and erosion. Wide, steep, 30° total taper permits extremely close regulation of flow and vapor-tight closure.

The Stainless steel plug is securely fastened to the spindle with a bronze locknut. Spindle is aluminum bronze with a tensile strength exceeding 70,000 lbs., — has high corrosion resistance.



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